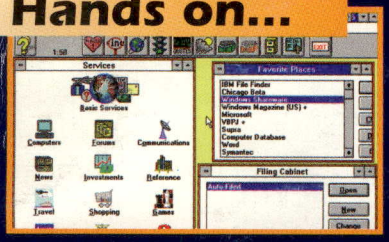
THE PRACTICAL GUIDE TO WHAT'S ON AND WHERE TO GO

INTERNET

DECEMBER/JANUARY 1995, ISSUE 3, £1.50

Hands on...

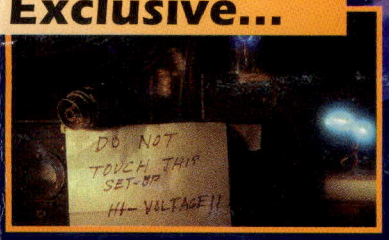


Compuserve v Internet: which service is the right one for you?

What's on...

The biggest directory of Internet addresses and services just got bigger

Exclusive...



Internet inventor Tim Berners-Lee: why the Web is STILL too complicated

Get on!

How to get connected to the Internet – the full story

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From Emap Computing

THE TOP 10 WEB SITES OF '94 PLUS hot news this month... Digicash in the UK... Microsoft joins the in-crowd... Government information on-line...

Why should you pay for *free* software ?

The first commercial versions of Mosaic...

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The hype surrounding the Internet may not last indefinitely, but it still has a long way to go before it peaks and since the last issue of **INTERNET** the media has certainly been full of Internet-related stories – most of them positive public.

On the news front, Microsoft has cemented its commitment to the Net by announcing Internet Assistant for Word, as well as Microsoft Network, its own BBS system. BT has finally launched a dial-up service, although at first glance the pricing appears to be rather obscure. And the Telegraph went online, with a set of pages which look beautiful, but while they're downloading, you've got time to read the paper version from cover to cover.

You'll find the low-down on all these happenings in this issue of **INTERNET** and don't miss our essential Top Ten Web Sites of 94. What's more, this month the UK's most extensive and up-to-date list of places to go on the Internet is bigger than ever before.

Neil Ellul, *Editor*
neile@computing.emap.co.uk

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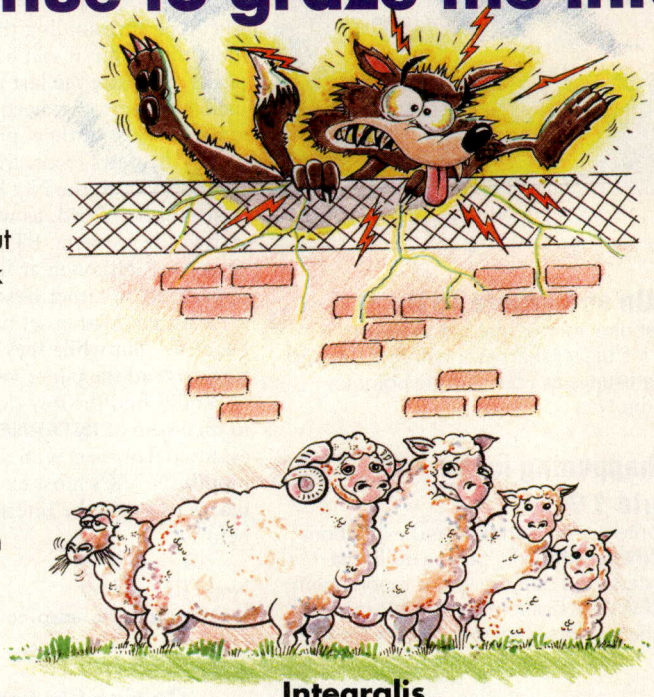

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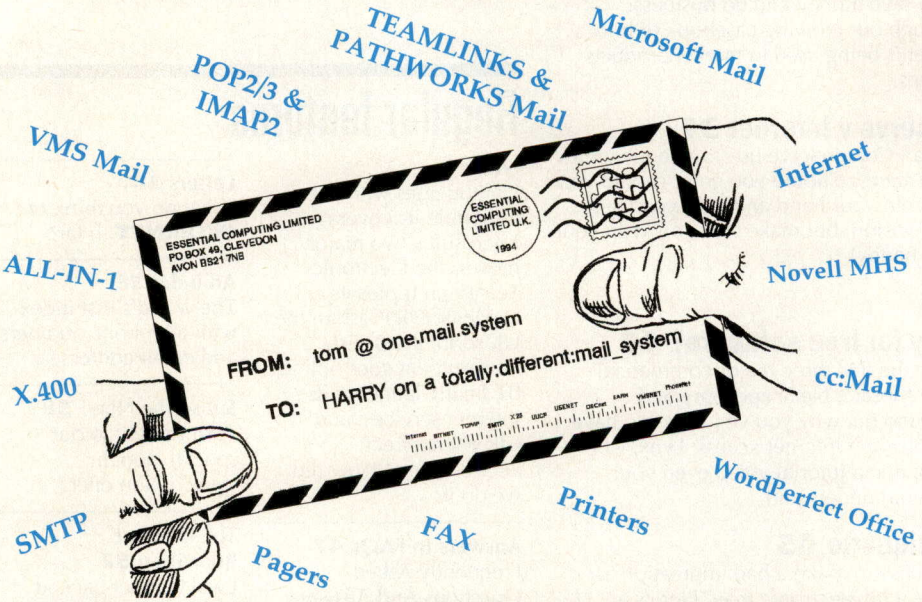

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news...

Top-end prices from BTnet

BTnet, BT's long expected entry into the Internet market, was launched in Brighton last month. The company claims it is providing the widest range of connection options in the UK, including leased line, V.32 bis modem dial-up, ISDN, frame relay and switched multi-megabit data service (SMDS). X.25 over the ISDN D channel is promised for 1995.

BT admitted, however, that its pricing was high and aimed at business not home users.

Justifying its pricing structure, Chris Gahan, data solutions manager at BT, maintained that there would be one modem installed for each dial-up customer – unlike rival services where lines are overcrowded at peak times. There will also be 24-hour support.

For an ISDN connection, BT will charge a £499 connection fee and an annual subscription of £3,000. This excludes the cost of ISDN 2 installation and a terminal adapter. There is no provision for outgoing calls from BTnet to the customer's premises, so this ISDN connection could not be utilised for running a low-cost Web server. BT promised to introduce its own Web server for customers who want to put pages up on the Net.

BTnet will have one POP (Points of Presence) in London and one in Manchester. USA connections will be via MCInet and in Europe through a link to EBONE in Paris. Links to other UK providers will be achieved through LINX (London Internet Neutral eXchange). This will prevent a connection between a BTnet user and a Pipex user being routed via the USA.

BT said it intended to introduce a service for home users by mid-1995.

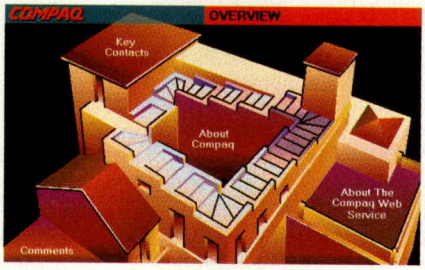
For more information contact gahan@hpohpt.wgw.bt.co.uk

Compaq links with Easynet

Claiming to be the first major player with an Internet-ready PC, Compaq has struck a deal with the UK Internet access provider Easynet.

All Compaq Presario computers will come bundled with Easynet's own Windows-based Internet software.

A bullish David Furniss,consumer marketing manager for Compaq, claimed that the Compaq/Easynet deal is expected to increase the number of UK Internet users by as much as 30% during the first quarter of 1995.



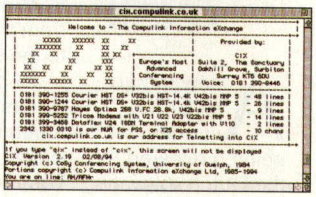
The managing director of Easynet, David Rowe, explained that Presario owners won't be getting any special discounts on joining fees or connect time.

However, he hoped that instead of being supplied on disk as at present, the Easynet software will already be pre-loaded when Compaq customers receive their Presario machines.

Easynet is best known for its close links to Cyberia, the cybercafé based in Whitfield Street, London W1.

Easynet can be contacted at admin@easynet.co.uk. See Getting Started on page 22.

CIX to improve Net service



Compulink Information eXchange (CIX), the Surbiton-based conferencing system, is to improve services during 1995.

At present CIX subscribers can only access the Internet via a shared IP address. This means that most WWW graphical users won't work and CIX users have to view Web servers via a text-based browser, Lynx.

However, CIX is expecting to trial a service during the Christmas period whereby users are provided with a specific IP address. If all goes well, CIX hopes to go live with the service in the new year.

CIX's Matthew Sims said that the company had considered a shared IP option but rejected it on the grounds that email and many WWW browsers require a set IP address. No pricing was available at time of writing.

Contact CIX at cixadmin@cix.compulink.co.uk

The latest on Mosaic Netscape

As we went to press, a new beta version of Netscape Mosaic (version 0.93 for Mac and 0.94 for PC) arrived. There are several new features and bug fixers, notably: cut/copy/paste, automatic text scrolling, customisable fonts, improved speed through persistent disk caching, security enhancements, asynchronous DNS look-ups (no more machine hang-ups), drag and drop, printing, image display speed improvement and compatibility with AfterDark 3.0. Looks great – more next month!

General go local

General Electric is leading the first wave of major companies outside the computer industry to use the Internet in its marketing mix by joining CommerceNet (http://www.commerce.net). This is a consortium of technology companies promoting the Internet as a business tool. GE's Web server (http://www.ge.com) allows access to corporate literature, technical and product information, press releases, graphics, design guides and information to enhance customer service.

Internet provides vital medical aid

Panic precautions in the recent outbreak of Bubonic plague in the South West Indian state of Gujarat caused unprecedented demand for antibiotics. Frustrated by communication problems, suppliers turned to the Internet to replenish stocks. Reports to date say it has been an overwhelming success.

news...

US media giant takes first step

In yet another example of major media companies rushing to join the Internet, broadcasting network NBC intends to debut its home page in the first quarter of 1995. Expect to see *Saturday Live* footage, merchandising and video mail order featured.

Prisoners of war escape through Net

Citizens of war-torn Sarejevo, imprisoned at home and unable to use the post or telephone, found a communication loophole via benefactor George Soros' Internet connection. More than 150 people were able to contact friends and family using email over a three-month period. Soros also provided links to 30 schools in Romania for English homework exchange with Californian students.

Curry in a hurry

Former MTV host and On Ramp net jockey, Adam Curry, claims the Internet allows him to communicate personally with 300 to 500 people a day, far more than through any other means. Said Curry, whose former site Metaverse (`http://mtv.com`) is the subject of an on-going legal feud with MTV, "Imagine if that many people came to my door or up to me in a mall or restaurant ... I just wouldn't have time."

Online online

By purchasing Internet backbone creator ANS (Advanced Network & Services) and the InternetWorks browser/viewer, AOL (America Online) is positioned to lead the US market in the provision of high-speed, high-quality communications services. AOL expects its 1.25 million subscriber base to more than double next year, following the provision of 14.4 Kbps, 28.8 Kbps and ISDN Internet access to most US cities, at no extra cost.

Microsoft announces Internet access from within Word for Windows 6

Microsoft announced Internet Assistant for Word 6.0 for Windows at Comdex Fall. The add-on, to be made available free of charge on the Internet, allows Word users to save documents in HTML (Hypertext Mark-up Language), as well as to browse the Web directly from within Word.

HTML, the format used for document pages on the World Wide Web, is a complex and time-consuming format to master. It depends on inserting 'tags' for each paragraph or font size, as well as complex codes for creating hyperlinks to other documents.

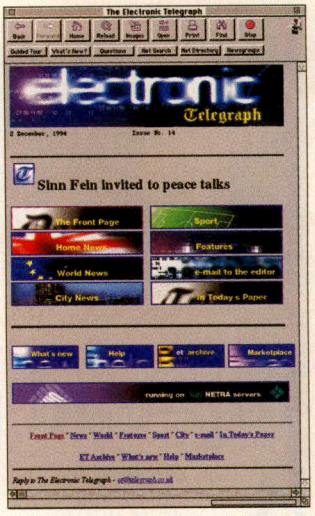
With Internet Assistant, Microsoft claims such complexities will become a thing of the past. Using advanced features such as drag-and-drop and OLE (object linking and embedding) 2.0, users should be able to create 'data rich' documents with ease.

It also allows the creation of 'internal Webs' by linking Word documents shared on internal network servers.

Joan Cummings, Microsoft Word product manager, said, "The goal is to give more people access to the World Wide Web through a friendly interface like Word."

Users should be able to create and distribute documents containing hypertext jumps to other documents, in much the same way that Windows help files work now.

From December, Internet Assistant for Word will be available from a number of sources, including Microsoft's World Wide Web server, at `http://www.microsoft.com`. Microsoft is on 0734 271000.



Daily Telegraph gets up to speed

As predicted in the last issue of **INTERNET**, the *Daily Telegraph*, has launched an electronic edition of its paper on the Internet, via Demon.

Initially users were complaining that access times were rather slow but according to Hugo Drayton, the paper's marketing manager, steps have already been taken to improve the service. Firstly, an ISDN link has been established between the *Telegraph's* own Web server and the Internet in an effort to speed access times.

Additionally, it has concluded a deal with Netscape Communications. Those who access Electronic Telegraph pages will receive a customised version of Netscape's Network Navigator, containing a copy of the *Telegraph's* home page. When the user logs on, the home page will be read back from the PC's hard disk, thus speeding up access times.

You can access the *Telegraph's* home page at `http://www.telegraph.co.uk`

Electronic fund transfer

we accept ecash

A new form of electronic currency is being pioneered by the Dutch software house, Digicash.

The concept is to have a completely electronic form of currency. Customers can download a specific amount of money from a bank account to his or her hard disk. When they want to buy products or services, these are purchased by transferring money from the hard disk to the supplier.

At present the system is still very much in its early stages, with 2,000 volunteers downloading $100 cyber dollars from Digicash and then ordering services from participating companies. Digicash's Paul Dinnissen claimed that the firm was close to signing its first deal with a major bank so that the scheme could go live.

Unlike rival solutions, which require both the Internet user and Web server to be running compatible versions of the same software, Digicash is software-independent. The product gains its security from implementing a version of the public encryption scheme PGP (Pretty Good Privacy).

A UK banking partner should be announced shortly.

For more information contact **`info@digicash.net`**

Demon signs on the dotted line with Energis

UK Internet service provider Demon has seen an enormous growth in the take-up of its Internet services. The company expects to be signing up over 2,000 new customers in December alone. Hence, it needs more POPs and additional lines to those POPs.

The solution has been to sign with the new tele-communications provider, Energis, which will initially supply the company with around 600 additional lines. Once these lines are up, the company expects to have a user-to-modem ratio of about 15:1, and claims it will have to double its existing number of subscribers before reaching a 30:1 ratio.

The change will include phasing out some existing Demon POPs and adding a significant number of new ones. Demon aims to have three main POPs, in Finchley, central London and Edinburgh.

There are also other claimed improvements to the service, including an increase in bandwidth to the USA (a 1.55Mbps link). The company is also taking on additional support and telesales staff plus programmers and system administrators.

Demon can be emailed at `grahame@demon.net`, and its home page is at `http://www.demon.co.uk/subscribers/w/walm/`

Easy online payment

Netscape Communications (formerly Mosaic Communications) has allied itself with the First Data Card Services Group to make it easier for businesses to accept payment via the Internet.

The service claims to be the first real-time online credit card authorisation service. Those subscribing will be able to accept payments from all major credit card holders, including Visa, Access (Mastercard) and American Express.

As a result of the deal, customers of three North American banks – First Interstate, Norwest Card Services and Old Kent – will immediately be able to sign up for this Internet-based service. More banks are expected to follow swiftly.

In order to take advantage of this service, a business needs to set up a 'virtual shopfront', ie a presence on the Internet using the Netsite Commerce Server from Netscape. This software costs $5,000 and allows the user to create a Unix-based Internet server. The major difference from other servers is that Commerce Server has built-in RSA data encryption technology.

To purchasers, the credit checking service will work in the same way as if the vendor has a card swiping facility, but to use it the customer needs to be running the latest version 1.0 of Netscape.

Netscape, in versions for Windows, Mac and X-Windows, is available free from `ftp.mcom.com` to non-commercial users.

More information from `info@mcom.com`

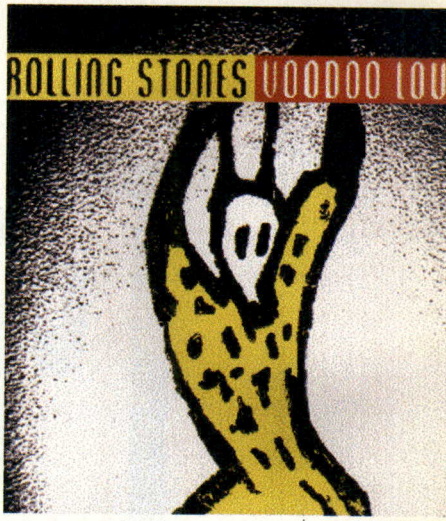
The standard of graphic design on the Internet came under fire at a major London conference last month.

Speaking at the Fuse 94 event, top typographer Erik Spiekerman, founder of MetaDesign, dismissed the visual appearance of Internet pages as 'appaling' and called for designers to take a stand in restoring order to the medium.

He scoffed, "If it hadn't been for the work of designers over the past 200 years, the world would look like the Internet – appaling."

David Berlow, whose company designs typefaces for Microsoft and Apple, took a more moderate line, saying "There is a need for better visuals, but designers need better tools to use on the Internet."

For a selection of the best Web sites on the Internet, turn to page 33.



Sticky Pictures

The Rolling Stones' much-heralded live Internet concert was broadcast on 18 November, to mixed reviews, especially for the ten frames per second video.

As one critic put it, "It should have been called 'Sticky Pictures'. The next Internet concert should feature artists older than the Stones, like Jimi Hendrix and Janis Joplin, whose on-stage movements won't be too fast for it."

Events like this should not be dismissed too lightly, though, as they go a long way towards increasing international awareness of the Internet for the masses.

US Robotics has reduced the price of its Courier V.34 desk top modem by £100, to £399. This move follows the recent launch of the company's budget-priced Sportster 28.8Kbps fax modem. According to Dataquest, US Robotics now accounts for 16.7% of UK modem sales, which makes it the market leader. The parent company in the USA recently announced record revenues of $378.7 million. For more information contact US Robotics on 0753 811180.

Inside job or Net hack?

A furious row has erupted over claims by a young Scottish journalist, Steve Fleming, that top UK secrets were passed to him over the Internet last July.

Fleming originally claimed to the *Independent* that he did not know the identity of his informant.

He maintained that he'd put out a general message on the Internet asking for information from anyone who'd gained access to BT's main computer, a system known as CSS (Customer Services System), designed by Cincinnati Bell.

Fleming then maintained that the replies he received were mostly time-wasters, but suddenly an anonymous person forwarded him some ten numbers which were purportedly top secret. Fleming claimed he then posted these numbers on the Net.

After this first contact, the unnamed hacker supposedly sent further information, outlining how easy it was to break into the CSS system. To check this out, Fleming maintained he took a temporary job for three days with BT. In the original article Fleming maintained that passwords were openly given out or left lying around.

The original *Independent* story was followed by a piece in the *Observer,* which demonstrated that Fleming's anonymous Net correspondent did not exist.

The obvious conclusion is that Fleming himself hacked into CSS while working temporarily for BT for two months, not three days as claimed. BT's reaction was to deny there was any 'hack' of the CSS system, and that it had found no evidence that confidential information was ever posted at all.

BT did not reveal how it had searched through gigabytes of newsgroups in such a short time. It is also investigating whether Steve Fleming has committed a criminal offence.

As is often the case, the Internet appears to have been blamed for something which didn't ever happen. If any security breach did occur, it appears to have taken place inside BT, not externally over the Net.

Bad news

Meckler Media's worst newsgroups of 1994 include: `alt.tonya-harding.whack.whack.whack`, `alt.lorena.bobitt.chop.chop.chop` and alt.oj-simpson.drive.faster

Universal soldiers on

Universal Pictures will give netsurfers a backstage view of movie-making at their interactive premier of 'Junior' starring Arnold Swarzenegger and Emma Thompson, at the MCA/Universal Cyberwalk (`http://www.mca.com`). Future attractions include Street Fighter starring Kylie Minogue and fellow pugilist Jean-Claude Van Damme.

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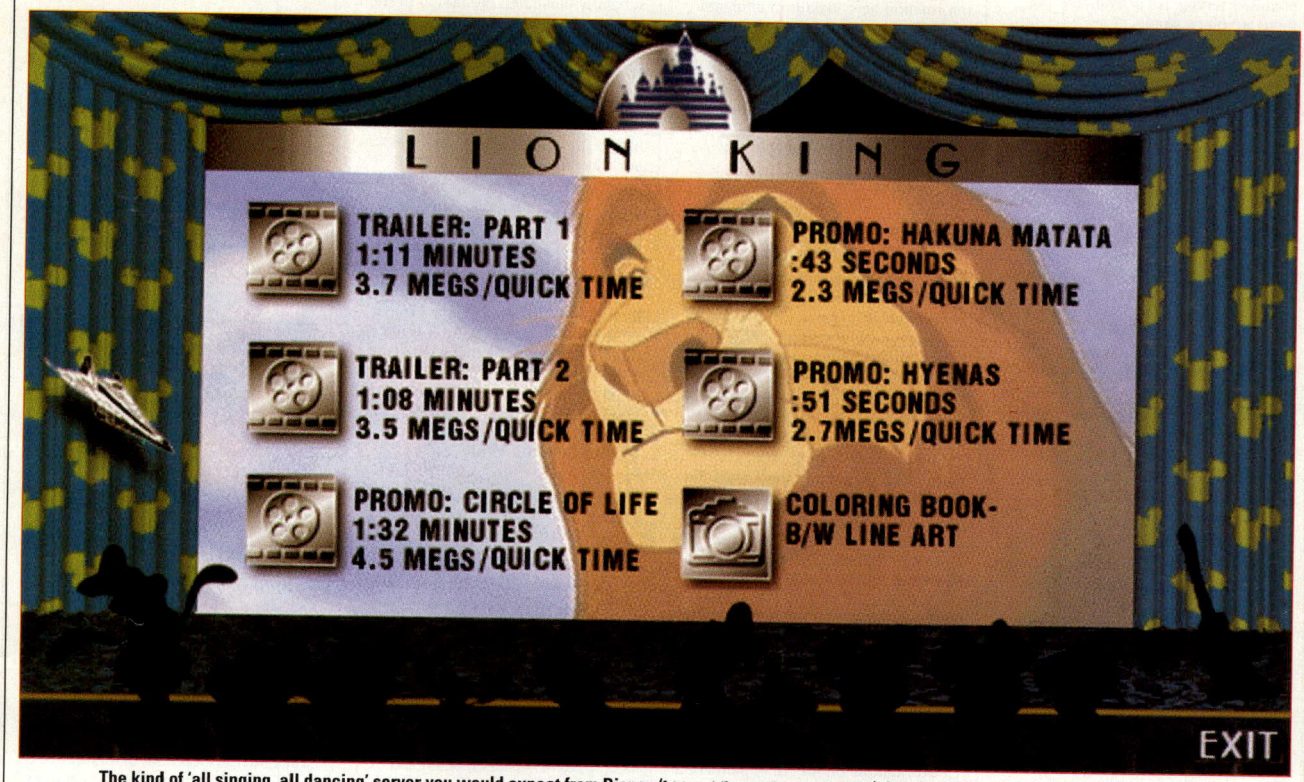
What's on and where to go



The kind of 'all singing, all dancing' server you would expect from Disney (`http://bvp.wdp.com/BVPM/`), but the high volume of material and quality of the content is surprisingly good considering how closely the company guards its copyright

These listings are the most extensive ever published in a magazine. They are intended to provide a showcase of the good, the bad, and the ugly of what's being done on the Internet. In the pages that follow, you'll find the addresses of a wide range of services that are attempting to get to grips with the exciting new medium of the Internet. Judge for yourself how they are doing.

Only by experiencing the Internet will you begin to get a feel for how it could, should or shouldn't be done. We hope you'll learn how the Internet can play a part in your own profession or business. It's the way we're working to plan our own service. If you have a favourite Internet destination, please email us so we can share it with our readers. Send details, together with what's so special about the site, to `whats_on@computing.emap.co.uk` (subject: issue 3). Please note that Internet services are arriving and changing by the week, so some of the addresses in our listing may be different when you come to try them. At the time of going to press, all the addresses listed had been tested by our team.

Special thanks to the Internet service and equipment suppliers who've eased our way on to the Web. In particular: David Mooring of Pipex, John Stewart of Electric Mail and Yuri Pasea of Kerridge Networks.

What it all means: Once you are connected to the Internet, all the addresses below should be easily accessible via a multitude of common shareware Internet packages. If you have any problems, feel free to contact us via email. The locations described break down into the following three groups:

World Wide Web: The majority of locations listed (those starting with http:) are addresses for Web servers. Type them into the Open URL window in your viewer exactly as they appear.

Gopher: These can be accessed from your Web viewer, but you will get better results if you're using a dedicated Gopher client. Type everything after Gopher:

FTP (file transfer protocol): Key in the full address, ie every character after the initial FTP: Depending on your software, you may have to put the path name (all the text after the first /) in a different dialogue box.

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HOME PAGES

BBC Networking Club

http://www.bbcnc.org.uk/

A growing board with general information on the BBC's broadcasting schedules and activities. There is public access to TV and radio listings, album charts and even Radio One's playlist and rotation schedule. The links to and explanations of various Internet searching tools and browsers should make this a useful starting place for learners. For £5 you can join 'Auntie', the resident BBS, participate in conferences with programme makers and access files and other information. No news service is yet available but there are plans afoot.

Cityscape GoldSite Europe

http.//www.cityscape.co.uk

Don't miss out on the more arcane corners of the Internet, but if you mean business, GoldSite Europe is the place to start. The presentation is professional, and you can access news (admittedly this is essentially ads); information about the Net; back issues of the *Guardian* on-line; and, most importantly, a whole host of other servers and services, including the BBC Networking Club, Live at the ICA and the Cybercafe. Goldsite Europe looks good, feels solid and generally lives up to its claim to be 'your one-stop Internet information site'.

Compaq

http://www.compaq.com

This is an excellent example of how a PC hardware server should be done. Firstly, the home page offers a choice of text or graphics. The subsequent index pages have been carefully designed to fit neatly on a normal PC screen – easy to do, but hardly ever done. The contents is a good mixture of information and marketing material plus product support, including downloadable files. There's a page called Why We Are Here, which is devoid of the usual marketing guff about leading consumers into the digital age. Other vendors on the Internet would do well to read these pages because some of them have little idea why they're on the Internet.

Demon Internet

http://www.demon.co.uk

Unpretentious, not very informative home page for the UK's fast-growing low-cost provider. But these things change fast, so keep an eye on it.

EUnet

http://www.britain.eu.net

The second of the two major corporate Internet service providers, EUnet's home pages offer a straightforward description of its services, together with an interesting use of scanned images of a printed newsletter. EUnet has strong connections with continental Europe, which it exploits with occasional special international sports event results and reports services.

Netscape ☆

http://home.mcom.com/home/welcome.html

Possibly the most complete set of Internet resources accessible from one page anywhere on the Web, making it a great default home page. There are more pointers to browsers, gophers, virtual maps, catalogues and directories than on potentially any other site. Tutorials range from getting started through to designing your own pages. The daily updated cumulative What's New is a well-researched essential browse, but even better is the list of Cool Sites, as a shortcut to the eccentric and bizarre.

Pipex

http://www.pipex.net

Pipex has set itself up as the premier commercial UK service provider, and its approach is certainly very business-like. There are pages and pages of information here, details of affiliated providers in other European countries and routes to other destinations. A lot of the material is very technical, if that's what you need, but the mug shots of Pipex staff provide a human face and the bluffer's guide to the Internet offers a little light relief.

Rednet OnLine

http://www.red.net

There are three sections on this UK server. Local Services has announcements, items for sale and support groups. For information and help with using the Internet, go to the Laboratory. Enter the Black Hole and you'll be sucked into movie, image and sound libraries and be able to move onto other general, academic and corporate Web servers. What's particularly nice about this spot is the English accent. Its tone is efficient yet friendly and it's open without being overbearing, which does make a welcome change. You can email Rednet at webmaster@rednet.co.uk

ART

Andy Warhol Museum

http://www.warhol.org/warhol

Good example of how to implement an art gallery on the Internet. The Andy Warhol Museum in Pittsburgh does have the advantage of only needing to focus on the work of one artist. What's on offer are 'tours' of the physical museum with a list of pictures, together with a growing collection of samples of Warhol's work. Don't try this one with anything less than a high-speed 14,400 bps modem: downloading took almost as long as the artist's paint took to dry.

Le Louvre

http://mistral.enst.fr/~pioch/louvre/

This is a superb tour of the museum. There is a choice of two exhibitions; famous paintings and a mediaeval art display. Users are also offered a guided tour of Paris. Paintings are classified according to artist and, although not every work in the museum is included, there is an excellent sample of all the most famous. Users are even given the chance to hear background music as they peruse the exhibits, although the theme music from the Avengers is a weird choice.

OTIS

ftp:sunsite.unc.edu/pub/multimedia/pictures/OTIS

OTIS (operative term is stimulate) is an extensive Internet art gallery. It is well thought out, with some of the biggest sections those that explain about JPEG and GIF picture compression. You won't be able to view any of the art unless your system can handle such images. The material on view covers a wide range: photos, drawings, tattoos, raytracing, video stills, record covers, sculpture, and more. 'OTIS is open to all types of image-based expression' – indeed, some of the material is er, exotic. To subscribe to the mailing list, send a message to otis-request@cwis.unomaha.edu

Travels in Hypermedia

http://www.york.ac.uk/~jjrk1/

As well as links to pages of basic information about the Internet, such as the Big Dummy's Guide. This includes scholarly illustrated discussion of such issues as hacker culture and the politics of cyberpunk, pornography and the sexual aesthetic of the Internet.

Travels with Samantha

http://martigny.ai.mit.edu/samantha/travels-with-samantha.html

This was one of the winners of the Best of Web 1994, mainly due to the quality of the photographs. Travels with Samantha is the journal of a writer, Philip Greenspun, who travelled through the US and Canada. From a cursory reading of the text, it is not the quality of the writing that has been attracting all the plaudits but the 250 photos of landscapes, wildlife and young women.

Writing on the Wall

http://www.gatech.edu/desoto/graf/index.art_crimes.html

A varied collection of graffiti art from all over the world. Useful if you are thinking of redecorating your bathroom.

BANKS

Bank of Ireland

http://www.webnet.ie/cust/boo/indes.html

The Bank of Ireland is one of the world's first retail banks to experiment with using the Internet to reach its customers. At present, there's not a lot on offer: weekly updated foreign exchange information and the facility for customers of one of its branches to order bank statements. According to the results of a user survey reported on the server by the bank, the top Internet services requested by users are: order a statement; get a balance report; pay bills; perform credit transfers from account to credit card companies; get credit card transaction details; get mortgage and loan information; find out foreign exchange prices; and transfer money between accounts. A small start, but it is still a beginning and at least the bank's got its priorities ready set for them.

World Bank

http://www.worldbank.org

Good example of how a publicly funded international body can make its work more widely available. There are complete lists of reports available, from Rainfed Rural Development in Morocco to Stabilisation and Adjustment in Argentina. Unfortunately, at present it's not possible to get entire documents: there are abstracts and key word searching, but to get the complete information, you're referred to your local World Bank office. Seems like a bit of a missed opportunity to us.

BOOKS

Cambridge University Press

http://www.cup.cam.ac.uk

Experimental service that shows some of the ways for book publishers to use the Internet. As well as obvious items, like an on-line catalogue, there's information about works in progress.

Future Fantasy Bookstore

http://www.commerce.digital.com/palo-alto

The Future Fantasy Bookstore specialises in fantasy, horror, science fiction and mystery books. The company's new Web server allows users to browse the store, get samples of existing and new material, and look at the exotic cover art associated with this type of literature. At present the bookstore is not accepting payment via the Net for security reasons, but expect it to introduce an online service in the near future. The store can be emailed at futfan@netcom.com

BUSINESS

Catalog Central ☆

http://catalog.florida.com

A showcase for over a dozen catalogues, which you can order by phone or online. However, the 'But wait, there's more'-style build-up to the charges is so familiar it's discouraging.

CommerceNet

http://www.commerce.net

CommerceNet is the consortium of US Silicon Valley companies which have come together to create an electronic marketplace. Its extensive Web pages track the development of that marketplace, with extensive examples of how doing business on the Internet is being promulgated. Essential reading for anyone looking at the Internet from a business or professional point of view. The future of doing business on the Internet will probably happen here.

DigiCash

http://digicash.com

Home page for the home of ecash, an initiative launched this year to make it easy to do business securely on the Internet. Electronic 'cash' is purchased from Digicash, then used to pay for a growing range of services. The system is the brainchild of a company with its roots in bank 'smart cards'. At present, it's all experimental, but the company hopes it will set a standard. The home page allows you to register from your own electronic wallet of ecash.

MecklerWeb

http://www.mecklerweb.com.demo.html

Mecklermedia is a US publisher of directories and magazines and organiser of the Internet World exhibition. MecklerWeb is an ambitious project that aims to bring together $25,000-a-year sponsors from among technology vendors, consulting firms, PR and ad agencies and others to set up an Internet-based "corporate

communications and marketing system". See for yourself how they're doing: when we looked, micro-casting marketing messages through the Internet looked pretty dull.

On Ramp ☆

http://www.ramp.com

Although under construction, this site has ambitions to become an Internet 'one-stop shop', providing access to dozens of popular addresses. The road motif is used throughout as you journey down the highway, with options to stop at various points. The business section gives you access to five banks, stock market prices, Wells Fargo business services and the US Patent Office. The rest stop offers humour, a huge games section and the Internet equivalent of chat lines. Many users have signposted their own home pages here and a random sample covered interests both mundane and subversive. Visit the products and services area for trips to art galleries, book stores, health clubs and restaurants. A good site with lots to do and see.

Scottish Highlands and Islands Server

http://nsa.bt.co.uk/nsa.html

Compiled by staff at some BT outpost who presumably have little else to do, this promo for the Highlands and Islands seems at first rather arcane. There are sections on leisure and culture, sporting activities and the Gaelic language, but the pages about business activity and distance working in the region are suddenly very interesting. In fact there's a lot of good information here and the pictures and graphics, although they take about as long as the boat trip to the mainland to load, are high quality.

The Company Corporation

http://incorporate.com/tcc/home.html

The Company Corporation offers users a variety of business-related services. Among them is information on incorporating in the State of Delaware (very useful for those readers who are US citizens looking for tax breaks). There are also several catalogues of technical documentation. Since the beginning of this year, users have had to pay for this service. Among other offerings is a list of technical job vacancies, mainly in the California area.

The Internet Group

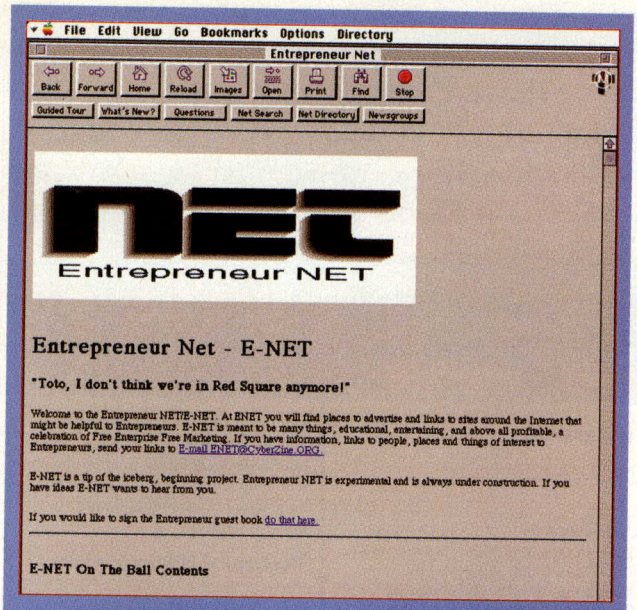
http://www.tig.com

The Internet Group is currently the leading doing-business-on-the Internet firm. As well as pages all about TIG's publishing, consulting and seminar services, there are also links to services offered by its clients, as well as sections of information about the commercial use of the Internet. If you're planning business or professional use of the Internet, TIG is an essential destination. Its Hot Sites page offers links to commercial use in categories that include: travel, government, financial services, legal services, shopping malls, storefronts, and more.

West's Legal Directory ☆

gopher://163.231.231.3

Profiles of more than 500,000 attorneys and law firms in the USA.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Entrepreneur Net
Back Forward Home Reload Images Open Print Find Stop
Guided Tour What's New? Questions Net Search Net Directory Newsgroups
net
Entrepreneur NET
Entrepreneur Net - E-NET
"Toto, I don't think we're in Red Square anymore!"
Welcome to the Entrepreneur NET/E-NET. At ENET you will find places to advertise and links to sites around the Internet that might be helpful to Entrepreneurs. E-NET is meant to be many things, educational, entertaining, and above all profitable, a celebration of Free Enterprise Free Marketing. If you have information, links to people, places and things of interest to Entrepreneurs, send your links to E-mail ENET@CyberZine.ORG.
E-NET is a tip of the iceberg, beginning project. Entrepreneur NET is experimental and is always under construction. If you have ideas E-NET wants to hear from you.
If you would like to sign the Entrepreneur guest book do that here.
E-NET On The Ball Contents

E-NET Entrepreneur Net

http://www.cyberzine.org/html/Entrepreneur/enetpage.html

Information on how to advertise and set up business on the Net. There is a wealth of links to business resources and commercial sites. The Classic Internet Ad Samples have loony products for sale, such as the talking fork, the yummy yummy toothbrush, the swearing key ring and the rapping Christmas tree. Possibly the most capitalist site on the Web.

COMPUTING

Adobe Systems Inc ☆

http://adobe.com/

Information about Adobe products and support. If you're using Acrobat, the Reader software is available for download and you'll find plenty of PDF (Portable Document Format) files and site links to browse.

Apple

http://www.apple.com

This site offers a plethora of information and resources; everything from Apple's press releases through to current product information, technical support and developer information, together with links to other Internet sites that hold Apple-related information.

AT&T ☆

http://youwill.com

Information about the products AT&T has on offer and has in mind for the future. IT also provides a communications link for support.

Compaq

http://www.compaq.com

This is an excellent example of how a PC hardware server should be done. Firstly, the home page offers a choice of text or graphics. The subsequent index pages have been very carefully designed to fit neatly on a normal PC screen – easy to do, but hardly ever done. The content is a good mixture of information and marketing material, plus product support, including a wide selection of downloadable files. Other vendors on the Internet would do well to read these pages because some of the clearly have little idea why they are there. Other vendors would do well to take note of this site.

Dell

http://www.us.dell.com

Unintentionally pompous Web debut by one of the world's top PC makers. Click on the big Dell logo above the few hypertext items (spare parts, technical support, BBS files, catalogues, press releases, Dell online service, Dell international phone list) and the next thing you see are pictures of company founder Michael Dell and a 'bloke' called Joel Kocher. Apart from Mike 'n' Joel's grannies, who'd want to see that? Or read the guff below about how great the Dell company is? There is something innovative to be found here though. Click on 'see a graph of Dell stock performance' and you'll see the latest information delivered by the MIT Artificial Intelligence Laboratory's Experimental Stock Market Data Server.

Digital Commercial Services

http://www.commerce.digital.com/

Designed to show off what Digital can do, this is an almost inexhaustible collection of tourist information about the town Palo Alto – essential reading if you're holidaying there but of only marginal interest if you're not. Along with out-of-date advice on how to avoid traffic jams during the World Cup, the Caltrain timetable and a promo for Cloud Gallery, a CD-Rom of 'passionate and powerful sky backgrounds', there are screens and screens about Mary & Michael's Wedding Photography. This material is hardly a serious advert for Digital, though it's not without its amusing moments.

Digital

http://www.digital.com

This is the main Digital home page and it provides links to other DEC web servers and to professional associations sponsored or supported by DEC, such as the Boston Computer Society. It all adds up to a pretty comprehensive service to Digital customers, devoid of fancy graphics and marketing puff. There are a few whimsical links to the likes of the Palo Alto Cloud Gallery and the Future Fantasy Book Store, but on the whole it would benefit from being more colourful.

Harrier Softnet

http://www.harrier.com

Here we have a simple, unpretentious set of pages giving technical information about TCP/IP products distributed by Harrier in the UK and France. Includes seminar dates as well as in-depth technical information.

Hewlett-Packard

http://www.hp.com

Recently-improved service from HP which now includes access to drivers and patches for peripherals and other hardware products. This is a good example of how a properly set up Web server can deliver easier, cheaper, and better support than that which has been available through CompuServe or hard-to-get-the-numbers-of bulletin boards.

IBM

http://www.ibm.com

Colourful compendium of IBM marketing information with much emphasis on the company's technology prowess. No technical information or support information: if you're having problems with OS/2 release 3.0, you'll have to look elsewhere. There is, though, the novelty of a spoken message of welcome from IBM chairman Lou Gerstner. One of the strong points of this site is that it seems to be updated regularly. Could do with more technical 'bottom', though.

Intel

http://www.intel.com

Mixture of reasonably-presented product and support information, together with a list of sometimes-interesting 'off-ramps on the infobahn.' One aspect of the Intel Web server that is well done is a section of usage statistics, including graphs. For anyone looking for clues as to the profile of Internet users, there are some pointers buried here.

Lotus Development

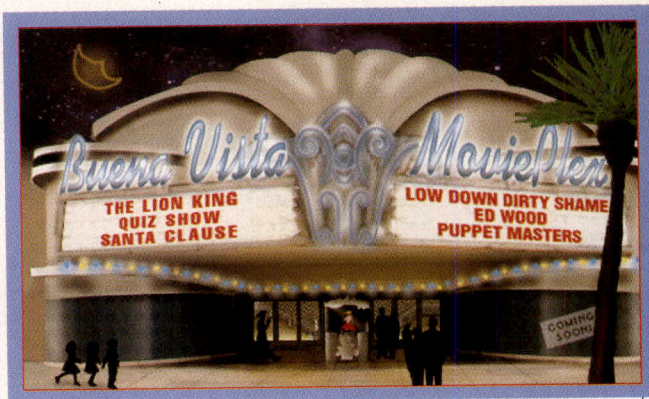
Email: support@ccmail

If you want electronic mail access to support for Lotus's cc:Mail – one of the most widely-used commercial electronic mail packages – this is the place for it. Can a Web server from Lotus itself be very far behind ?

Microsoft

http://www.microsoft.com

This is a major Web effort by Microsoft that shows the way for computer industry companies to use the Internet to extend the services they offer their customers. Although the Web service is still in development, there's a large amount of information for developers and Microsoft product end-users. The Web server includes sections of information about Windows and Wolverine – the new 32-bit TCP/IP stack for Windows. It's also possible to get access to patches, sample code, and text files on existing products. This



Buena Vista Pictures

http://bvp.wdp.com/BVPM/

This excellent site presents previews of forthcoming mainstream movies from Touchstone and Disney. The title screen is an old-fashioned movie house – walk through the doors to watch excerpts from new films, interviews with the stars, and to read press information. It's possible to download minute-long edits and, although this takes a while, on a good system the quality is great and you can watch clips from *101 Dalmatians* time and time again.

will be a major Internet resource. It is also available via FTP at ftp.microsoft.com and Gopher at gopher.microsoft.com

NEC in Japan ☆

http://www.nec.co.jp/index_e.html

This is an incredibly stolid and worthy page from Japanese electronics giant NEC. The page index says it all: company overview, product overview, corporate philosophy, Corporate Identity, NEC's vision of the future and so on. The pages themselves are bland and boring and there seems little point in creating a site like this, other than to show traditional Japanese respect for the chairman. You can check out how he feels about it because the only image is his – and he looks pretty bored as well.

Novell

http://www.novell.com

Novell, the company behind the NetWare network operating system, has made a big move recently to shift its support and information services to this Web server. All of what's been available through CompuServe Netwire service for some time is now on the Web server. If you have local-call or ISDN Internet access, this makes the Web server a much cheaper way of getting support than using the CompuServe service. In a simple and straightforward fashion, Novell is up there with Microsoft showing how the Internet can be used to deliver product information, patches, updates and support.

Silicon Graphics

http://www.sgi.com/

This is a stylish and colourful selection of offerings from Silicon Graphics, maker of design, graphics and animation workstations. It contains the usual lists of products and recent press releases, together with more off-the-wall sections like Free Lunch, a free selection of graphic images and movie clips created by SGI's customers on its graphics workstations. All this plus a list of technical documents and information for stock investors in the company.

UK Unix User Group

http://web.dcs.bbk.ac.uk/ukuug/home.html

All things Unix can be found here, courtesy of the UK Unix User Group. Membership details, a summary of the organisation's newsletter and links to other relevant sites can all be accessed, plus a substantial software archive. If you're into Unix in a big way this is a must.

WordPerfect

FTP: ftp.wordperfect.com

A dull effort by WordPerfect: all you get is access to product literature and the cost of being supported by telephone. No obvious access to patches and fixes or dialogue about new products. Presumably that will come...

EDUCATION

The EnviroWeb

http://envirolink.org

Very impressive at first sight, the EnviroWeb claims to be the largest online environmental information service on the planet. All the sections boast the prefix 'Enviro'; there's an EnviroFreenet, an EnviroForum, an EnviroNews service and so on. However, many of these areas are currently under construction and in practice there's not a great deal there yet. If you're interested in the environment, this is one to watch.

Interpedia Project

http://www.hmc.edu/www/interpedia/index.html

The Interpedia Project aims to bring an on-line encyclopedia to the Internet and its Web site is the focal point of the activity. Interested parties can find out more about the project, and obtain details on current and experimental information resources around the Net.

The Exploratorium

http://www.isacc.exploratorium.edu

Great example of how to 'do' a museum on the Internet. Not only are there the usual pages there: opening hours, what's on, and how to get to the San Francisco-based Exploratorium, but the Web pages also attempt to bring to life some of the museum's 650 interactive exhibits: from a 'duck into' kaleidoscope to the Ames room (it has no square corners).
To get the full effect of the Exploratorium pages, your system needs to support the JPEG picture compression standard.

Interactive Frog Dissection

http://curry.edschool.virginia.edu/~insttech/frog

This online tutorial is one of the few genuinely valuable educational resources I've come across on the Net. It sets out to teach you how to be nifty with a knife in the biology classroom and is aimed at US high schools, so it's suitable for UK secondary students. The text is admirably clear and the movies alarmingly to the point. This is not for the squeamish, but then again watching a frog being hacked to pieces on screen is probably preferable to doing it yourself.

The Natural History Museum

http://www.nhm.ac.uk/

Workmanlike start for the first major UK museum to enter the age of the Internet. The service consists of a set of pages about the museum's opening hours, exhibits and special services for school parties. There are some pictures of what's on show and access to its catalogues. In addition, there are links to other info sources about the earth and life sciences – useful for browsing researchers. A nice touch is that every web page has the names of two people responsible for its content, neatly personalising what could otherwise be a large and impersonal institution.

Websters

http://c.gp.cs.cmu.edu:5103/prog/webster

Stuck for a definition of a word? The Websters Web site contains an online version of the famous dictionary, although the word you are looking for may not yet be on there.

ENTERTAINMENT

Best-quality Audio Web Poems ☆

http://www.cs.brown.edu/fun/bawp

Are these pages in the right section? I'm not sure as they have the rather dubious aim of recreating the experience of live poetry readings. Unfortunately, I couldn't get the recordings, which should be in mono MPEG-2 audio format, to play. However, if I go to my grave never having heard Oskar Alaska declaiming 'The Wham and the Whamalama-dingdong', I don't think I will have missed much.

Bundyland

http://www.eia.brad.ac.uk/mwc

For fans of the cult show *Married With Children*, this site is a must. Providing everything from video (MPEG), sound (.WAV and .AU) samples from the show, to a huge number of stills, most of which seem to be of Kelly (Christina Applegate), the family's daughter.

Cardiff's Movie Browser

http://www.cm.cf.ac.uk/Movies

Exceptionally comprehensive relational database of movies, casts and reviews. It has the ability to cross-reference selections to find all the films a certain actor has appeared in by clicking on their name from the cast list of another film. Most films are rated by online voting and users can contribute.

The Church of the Subgenius

http://www.iona.ie/www/hyplan/jmason-data/slack.html

Weird. Worth visiting as a reminder that computers are dangerous in the hands of the mentally unstable.

Conservatoire National

http://www.cnam.fr

Some of the main pointers on this site don't seem to be available. There are two curiosities: one is a tour of Paris Louvre,the other, entitled 'Femmes, femmes, je vous aime!', is a page with an inline image of a bikinied or naked woman on it. Reload the page and the woman changes. There if you need it. One feature, though, is a good example of a picture browser. It takes files from newsgroups (such as alt.binaries.pictures.misc) and compiles them into inline contact sheets.

CyberSight

http://cybersight.com/cgi-bin/cs/s?main.gmml

An alternative home page, devoted to preserving 'the unconventional nature of the Internet'. Drop-down lists will take you to Cybversive, to what is fun, to what is arty. We spent some time reading a comprehensive tutorial on how to pick locks; apparently, it's not that difficult but don't try it at someone else's home.

Cyber-Town, Arts and Leisure

http://www.cityscape.co.uk/cyber-town/index.html

Home page to fun and interesting sites on the Net, as well as a place to learn more about the Internet. It points you to places that are exotic, such as the Gates of Darkness, or educational, such as the Louvre. A good page for recreational use.

Computer Games

http://wcl-rs.bham.ac.uk/~djh/index.html

If you're interested in computer or video games, this is the Web site for you. It has numerous links to games-related topics, including Usenet news groups, plus an online version of Game Bytes magazine. You can also gain access to FTP sites containing demo versions of games.

Best of the Web Awards

http://wings.buffalo.edu/contest/

This site contains a list of the world's finest Web sites, as declared at the May 1994 International WWW Conference in Geneva. It's divided into different categories, such as best commercial site, best entertainment site, best navigational aid, best document design, best use of interaction. Make your own mind up.

Big Mac's Monty Python Archive

http://www.xs4all.nl/~bigmac/python.html

Visit this site for a copyright-abusing compendium of Monty Python's

Flying Circus pictures, clips, audio and scripts. The big drawback for Python fans is that the only way to download them is to pay in DigiCash (see entry in the business section). Perhaps the wackiest ever way of trying to create a de facto standard.

Klingon Language Institute

http://www.kli.org/klihome.html

Completely straight-faced and serious server dedicated to the promotion and study of the Klingon language – as used by the menacing aliens from the Star Trek TV and film series. Even if you're not a trekkie, this is worth a look because of the quality of the execution of the server, in particular the use of the Internet's ability to deliver sound samples. Here, they are used as elegantly-written hypertext items to sound out the words and phrases used in the text.

The Creative Internet

http://www.galcit.caltech.edu/~la/creative.html

A major source of information about pop culture, with extensive sections on music and television. The Complete TV Guide includes the 'Ultimate TV List' which contains more than 135 links to information about 35 television series. The best coverage is, unsurprisingly, for *Star Trek*, with *The Simpsons* and *Married With Children* following close behind. The lists include newsgroups and mailing lists, as well as Web pages. The 'Ultimate Band List' offers over 752 links to information about 177 bands. There's also what's claimed to be the Internet's 'hottest music links'. Try them and see if you agree.

Justin's Links from the Underground ☆

http://raptor.sccs.swarthmore.edu/jahall/

Almost every link from this popular and well-maintained site is worth a look. There's a focus on the clandestine, the visual and the bizarre. There are simple instructions on how to publish your own page and even advice on how to hack HTML. If you're looking for the most twisted sites on the Web the weird, the wild and the wonderful – this is a good place to dive in.

Pulp Fiction ☆

http://www.musicbase.co.uk/movie/pulp

If the Internet is your only contact with the outside world, you may not yet have overloaded on hype preceding the release of Tarantino's Cannes winner. Those with a fixation on the incomplete may like to download excerpts from the soundtrack or movie. Since the video is likely to be a long time coming, this is probably the best source.

Star Wars Multimedia ☆

http://bantha.pc.cc.cmu.edu:1138

Strictly for diehard buffs of the film and not the fabled defence project.

The Simpsons ☆

http://turtle.ncsa.uiuc.edu/alan/simpsons.html

Listen to Homer drool "Two all-beef patties, special sauce..." and the like. The stills and animations are as good as you would expect and the sound files have a certain cuteness which many fans will enjoy tirelessly.

Virtual Gallery

http://www.atom.co.jp/gallery

Interesting modern art exhibitions from Japan. There's even a semi-racy photographic series from a character called Hisayoshi Osawi, featuring subjects in non-sensible shoes.

EXHIBITIONS

The Interface Group

http://www.comdex.com:8000

The Interface Group is the organiser of the major Comdex series of computer trade shows. Its workmanlike set of Web pages offer exhibitor lists, conference schedules, travel and accommodation, and visitor registration information. At present, though, you can't register on-line for any of the events – an application that surely can't be far off. An important challenge for exhibition organisers is to keep their pages up to date.

Strange Interactions ☆

gopher://amanda.physics.wisc.edu:70/11/show

An exhibition of prints, etchings and lithographs by physicist John E Jacobsen, some of which are superb.

Ziff-Davis Expos

http://www.zdexpos.com

An appaling-looking home page in conjunction with poorly-structured information mars a collection of web pages that provide exhibitor lists, conference programme details and other information about the Networld and Interop exhibitions in the US, France, Germany and Japan. In what is a first, Ziff-Davis offers online registration for these industry events. This server is certainly one to watch: ultimately the company plans to run Internet exhibition 'events' as well.

FINANCIAL

Federal Reserve Bank of NY

Gopher: gopher.csc.fi/11/other/intedu/usg/money

Here is a Gopher site giving fairly current information about the Federal Reserve Bank of New York's spot exchange rates, as well as documents on other FRB and Treasury statistics, such as historical money stock data and Treasury yield curve data. There is also a document of exchange rate trends. Keep your calculator handy.

QuoteCom

http://www.quote.com

Extensive, highly developed, and witty stock market information service. One of the best examples around of how to use the Internet to sell a service. A limited amount of data is free, the rest costs, but the charges are all broken down into small amounts. A basic service costs $9.95. London financial market data costs an additional $19.95. These pages are essential for anyone considering offering an Internet-based commercial information service.

FOOD

Country Fare Restaurant

http://www.service.com/cf/home.html

Visiting Palo Alto? Unlikely, but at least you can whet your appetite by browsing the menu at the Country Fare restaurant, in the most Internet-ed town in the world. Billing itself as an oasis amongst trendy establishments, this entrepreneurial restaurant offers sample recipes for downloading, and online ordering of recipe books. You can register your name to receive mailings about menu changes and offers. Whoever is in charge of the marketing, however, ought to reconsider the attraction of Whimsical Salt and Pepper Shakers!

London Pubs Reviewed ☆

http://www.cs.ucl.ac.uk/misc/uk/london/pubs/index.html

You can even add your own to the list of locals.

PizzaNet

http://www.pizzahut.com

Another experimental commercial service, this time in the fast food sector. At present you can only get actual deliveries in California, but since the server is in far-away Kansas, there's no reason why this electronic storefront should not come to a Pizza Hut near you. That is if it turns out this is a way consumers like to buy.

Spencer's Beer Page ☆

http://guraldi.itn.med.umich.edu/Beer/

A number of online home-brew recipe books, including the entire Cat's Meow series. Bottle spotters will be thrilled to learn that there are 228 labels displayed in 128 colours for their perusal.

Virtual Pub ☆

http://lager.geo.brown.edu:8080/virtual-pub

Attempting to raise beer to the status afforded to wine and scotch.

GOVERNMENT

CCTA Government Information Service ☆

http://www.open.gov.uk/

This prototype offers relatively sketchy information but invites feedback about operations carried out by the UK goverment on behalf of us, the people. There are also links to such departments as the DTI and the National Rivers Authority.

Department of Health

http://www.os.dhhs.gov/

The US Department of Health server contains useful information on finding your way through the US health service, and public access information on topics such as cancer and Aids.

FedWorld

http://www.fedworld

Test Web server set up by the US Government – a graphics-intensive home page that can take a long time to load. We had more trouble than usual getting connected, even during US night time. When you do, you get links to a growing database of information from one of the world's largest bureaucracies.

Information Market Europe

http://www.echo.lu

Recently-opened server with detailed information all about the European

Community's initiatives and research reports for the information market. Comprehensive, worthy stuff, but we're still wondering what the report on Dedicated Road Infrastructure for Vehicle Safety in Europe is doing there.

Japan Prime Minister

`http://www.kantei.go.jp`

"This server is located in the Prime Minister's official residence in Tokyo Japan. This service is only an experimental one, not an official service." That's about all you'll get from this inscrutable server, apart from some general information about Japan. Not likely to become one of Today's Cool Places (see Tools & Info).

The Right Side of the Web ☆

`http://www.clark.net/pub/jeffd/index.html`

This is a directory of places and resources on the Net for what most people would call a 'conservative point of view'. There is a directory of information which can only be found here, including reams on Rush Limbaugh, the reactionary radio host whose show is syndicated to over 600 stations, and a companion listing of related material which can be found elsewhere. This includes details of right-thinking newsgroups, updates on the latest in the Whitewater affair, and a link to the Ronald Reagan home page, which attempts to 'set the record straight' on the Gipper's achievements while in office. Obviously, the Right Side of the Web originates in the States, so unless you're an expert on US politics, you may find it a little esoteric. However, it's all done with a sense of humour and is certainly interesting from a cultural perspective. Email to `RightSide1@aol.com`

Her Majesty's Treasury

`http://www.hm-treasury.gov.uk`

Press releases, ministerial speeches, minutes and economic forecasts – you can subscribe to a mailing list to receive news and even read the budget. It has to be said that this is rather dull, but at least it shows the goverment is waking up to the existence of the 'information superhighway'.

Welcome to the Whitehouse ☆

`http://www.whitehouse.gov`

Have you been asked what sort of people use the Internet and given Bill Clinton as one extreme example? Well, here's proof. It is easy to be cynical about this PR exercise, particularly the moribund guided tour of the Whitehouse and Hillary's page, but it does show the doors of democracy to be at least ajar. Most government departments can be accessed from a simple menu. Best though, is the invitation to email the President and 'speak out', perhaps about his wife's page.

LIBRARIES

British Library

`Gopher: gopher.bl.uk`

Gopher-based pilot service that provides a marked contrast to what's on offer from the US Library of Congress. The service, dubbed Portico, includes information about how the library is organised, how to use it, and a notice board. It's also possible to search documents by key words. Given the library's years of experience in online information, a little one would have expected more excitement.

DTB Information

`http://www.dtb.dk`

What 'DTB' actually stands for doesn't seem to be explained, but these pages appear to be concerned with Danish technical libraries. This can be deduced from a map showing where the technical libraries of Denmark are located. However, despite the fact that most of this information is in English, with only a smattering of what one assumes must be Danish, it has to be said that it's all a little bit incomprehensible.

Educational Texts

`Gopher: etext.archive.umich.edu`

This archive contains hundreds of thousands of words, ranging from the complete works of Shakespeare to the script of a 'lost episode' of Star Trek. Only pornographic images are banned. Consequently, warns the archivist, users may find some of the material offensive. We take his word for it, but despite fairly extensive trawling, the most offensive stuff we came across was some truly appaling poetry. This site can also be accessed via FTP at the same address.

Library of Congress

`http://lcweb.loc.gov/homepage/lchp.html`

Attractive, colourful front end, whose immediate drawback is the time it takes for pages to load but it's worth the wait. Apart from the US government information and reference library sections you'd expect, there are electronic versions of recent exhibitions at the library – complete with photographs and illustrations. There are also pages of the Global Electronic Library which are currently under construction.

Lynx ☆

`telnet:// millbrook.lib.rmit.edu.au` (log in: `Lynx`)

A virtual library maintained by the Royal Melbourne Institute of Technology in Australia, which provides hypertext access to the web using the Lynx browser. This features a textual rather than graphical interface, making it very like a gopher menu, except with the click-on links we have come to expect from Mosaic.

Vatican Library

`http://www.ncsa.uiuc.edu/SDG/Experimental/vatican.exhibit/Vatican.exhibit.html`

Visit several virtual 'rooms' in the Vatican including a library, a music room and a nature room.

WWW Virtual Library

`http://www.cern.ch/hypertext/datasources/bysubject/overview.html`

The extensive WWW Virtual Library is a powerful search tool that allows you to find information on almost any of the world's Web servers through user-friendly key word searching. For users of WWW browsers like Mosaic, this is a vital address to add to your hotlist.

MUSIC

Elvis Presley

`http://tamsun.tamu.edu/~ahb2188/elvishom.html`

Yes, Elvis is alive and living in cyberspace. Created by schoolgirl Andrea Berman to 'honour Elvis and his cultural and musical legacy', this shrine is a must for fans. Visitors can tour Graceland, starting outside those famous gates. Listen to sound clips from classics like Love Me Tender, Heartbreak Hotel and Hound Dog.

Empty TV

`http://www.galcit.caltech.edu/~ta/mtv/mainhtml`

A parody of Music Television (MTV) and Adam Curry's Metaverse (see below). It can, however, be hard to get on to.

Japanese Independent Music ☆

`http://www.atom.co.jp`

While listening to these blipvert-type edits is normally a fairly pedestrian experience, it's not so with this tap into the exploding, yet unfamilar Asian pop scene. Sure, some is dated pap, and it may not be the next big thing, but it may just be the next big thing after that.

Megadeth, Arizona ☆

`http://www.bazaar.com`

Even if you're not a fan of heavy metal band Megadeth, this site is a must as an example of superlative HTML design. What's really smart about these barbed wire capped pages, and something every designer should note, is the bottom menu bar which travels with you and lets you know where you've been. There's heaps here for fans, a terrific set of screensavers featuring Megadeth animations and sound bytes, Troma Films' pages, makers of such nuggets as *The Toxic Avenger* and *Chopper Chicks From Zombie Town*, horoscopes and Megadeth archives and merchandising.

Metaverse

`http://www.metaverse.com/index.html`

This is a US music and entertainment service that acrimoniously grew out of MTV (Music Television). MTV is currently suing to get the exclusive use of the domain name `mtv.com`, the previous name for the Metaverse Service. As well as latest details of this David v Goliath legal battle, there's a range of sections of information about concert tours, new releases, videos, and unsigned bands promoting themselves. The service has definitely become more commercial recently, with reader offers and shopping being added to the mix.

Planet Starchild

`http://www.mcs.com/~bliss/starchild/home.html`

A surprisingly business-like board covering the entire constellation of indie music. Although still under construction, the architecture has been well thought out with easy-to-follow menus and hints. Some of the featured artists offer downloadable self-running promo kits for you to sample. Not for John Denver fans.

Rolling Stones Web Server

`http://www.stones.com`

Set up to promote the Stones' recent Voodoo Lounge album and tour, the `stones.com` web server contains tour dates, text and video interviews with members of the band, and the promise for autumn 1994 of a live concert broadcast over the Internet. If it works, it will be one of the world wide web highlights of the year. The server is marred by eccentric design, which involves a large number of pictures of the Stones' trademark logo before you reach any text. We tried it twice before we realised the absence of text at the top was nothing to do with a transmission error. The video clips are a great idea, but in the time it takes to deliver the Quicktime movies down even a fast modem connection you could form your own R&B covers band.

Sub Pop Records ☆

`http://www.subpop.com`

Mail order and archives from the Seattle home of Nirvana, Mudhoney and their ilk.

NEWS

Chronicle of Higher Education

`http://www.chronicle.merit.edu`

Straightforward adaptation to Web version of a weekly for US academics. The service includes the jobs advertised in each issue and, interestingly, covers things around the publication itself rather than merely 'shovelling' on the magazine's contents. Someone's thought about this.

Commercial News Services

`http://www.jou.ufl.edu/commres/webjou.htm`

Provides a comprehensive – but surprisingly short – listing of current Internet-based news services: from Palo Alto, California, and Halifax Canada, to Sardinia, Italy, and Warsaw, Poland. There's also a reference to Campus Newspapers on the Internet. If you're interested in what the electronic news media of the future will look like, this should be your first port of call.

Electronic Newsstand

`Gopher:gopher.enews.com`

One of 1994's most highly publicised Internet businesses, the Electronic Newsstand has been set up as a browsing medium for users who may want to buy subscriptions to magazines. The problem with the concept is that the Gopher-based service is hard to penetrate and we couldn't find the magazines. Luckily, we'd seen it before and remembered that when you do find the magazines,

The Electronic Daily Telegraph

http://www.telegraph.co.uk

To access this great free service, you'll first need to register for a pin number. Once in, the information available makes an acceptable alternative to print, except for agonisingly slow response times. Unless the problems caused by the slow server, heavy graphics and deep menus can be rectified, most will turn away after a cursory scan.

all you get is a table of contents and subs rates.

Gazetta Online ☆

http://info.fuw.edu.pl/gw/0/gazeta.html

An experimental edition of Poland's biggest daily, printed in Polish.

Guardian Online

http://www.gold.net/online/

Innovative UK national newspaper service supported by CityScape. On offer is access to full text of the paper's Thursday Online section, together with special arts features. For access to the newspaper articles, the service includes a key word search engine that's baffling until you get to know it.

NSF Network News

http://www.internic.net/newsletters

Free newsletter about the evolution of the Internet. Available in hard copy and electronic formats. To subscribe, email to newsletter-request@is.internic.net. Web pages include back issues.

Norfolk Virginia-Pilot

http://www.infi.net/pilot/vpls.html

Example of a US local paper online. When we dropped in it said more about the copyright and rights problems facing electronic news – according to a sad message from the editor, they weren't able to publish any because of a wrangle with the AP news agency. Nice to be able to read about the day's weather and travel information, though, and to look at the classified ads and local dining options. The *Pilot* is one of the publications referenced to by Commercial News Services on the WWW (see above).

Palo Alto Weekly

http://www.service.com/PAW/home.html

This is the on-line version of a free newspaper covering the much-documented Palo Alto area in California. Although its actual content is of little interest to out-of-town readers, the format illustrates what's possible in an electronic local paper.

Power PC Magazine On-Line

http://power.globalnews.com/

Power PC magazine, edited by industry man-about-town Chris Rose, publishes every two weeks and offers a neat twist to the usual electronic mag story. When you subscribe (at the moment this means register your name for free), you receive email on each publishing day showing the contents page. This alerts you to the fact that you can then retrieve the stories.
Big stories are subsequently sent to you at any time, when they break, by email and they appear under the heading PowerFlash. This site's access is supplied by BT.

Teletimes ☆

http://www.wimsey.com/teletimes/teletimes_homepage.html

An ambitious free monthly from Vancouver. It invites (and needs) contributions, although don't expect to be paid. In each themed issue, it has the odd interesting article, amongst more ordinary stuff. It's so well-presented it is a pleasure to flick through, but as is often the case, it is the potential here that is most exciting.

Weather

http://www.cs.ucl.ac.uk/misc/weather/weather.html.

Digitised satellite pictures for download. See the downpour before you go out to experience it, courtesy of University College, London.

PUBLICATIONS

Casper Star Tribune ☆

http://www.trib.com_home.html

Unless you are interested in Casper, Wyoming, this will be more interesting for its feeds from Time, VOA, CNN and its great travel and finance links.

Electronic Journals

http://info.cern.ch/hypertext/datasources/bysubject/electronic_Journals.html

What it says – a listing of magazines and periodicals available via the Internet, including links to either details or the full text of the publications. Those mentioned range from *3W*, the UK-based 'global network newsletter', to *The Electronic Green Journal* and *USA Today*. The file is extensive but users are asked to send news of additional titles. There is also some useful info on using the Net.

Elsevier Science ☆

http://www.elsevier.nl

Elsevier claims to be the world's leading supplier of scientific information. On board is a comprehensive list of journals, publications, multimedia products plus news of forthcoming releases, along with reviews and ordering facilities. Links provided include an excellent science gopher and the WWW94 conference proceedings at CERN.

Factsheet Five – Electric

http://kzsu.stanford.edu/uwi.html

Addicted To War, Tarot News, Psychotronic Video – all zines you don't know exist until you stumble upon this site. These weird publications are indexed, summarised and sometimes reviewed. The lists seem pretty exhaustive, but then we can't claim to be experts in this field.

Web Newspaper List

http://www.jou.ufl.edu/commres/webjou.html

Contains mostly links to US college, school, experimental publications and university journalism departments. The San Franciscan Gate is particularly good, allowing key word searching through well-written back issues. Polish, Italian, Russian and Dutch teletext also appear but nothing from the UK yet.

Wired

http://www.wired.com

Until recently, the world's hippest publication, a style magazine about technology, delivered some of the world's dullest Web pages: subscription rates, back issues, the latest issue contents page, and a promotional video that was more beneficial for testing your Web browser set-up than to watch. Now, though, Wired is steadily evolving its electronic product into HotWired. Keep checking on this because it's getting better all the time, and the title itself is soon to be distributed in the UK by the *Guardian*

Center for Civic Networking

http://www.earthweb.com:8000

Boston-based organisation that helps community and non-profit organisations exploit the Internet's potential for low-cost publishing. Consequently, the Center's home pages link to a wide range of other places.

Panix

Gopher: gopher.panix.com

New York-based public access Internet service where 'anything legal' goes. At present it's no Manhattan Cable, offering as it does a mild mixture of New York City and restaurant information together with some unusual specialist sections, such as the one containing technical and chemical information about photographic film, and the excellent MIT Guide to Lock picking.

RELIGION

Confession Booth ☆

http://anther.learning.cs.cmu.edu/priest.html

No, that's not on the menu, but I'm sure they will add it soon. Eat a cold bucket of chips, sit through the entire Madonna Film Festival, and teach your parents how to debug machine code as penance.

Lubavitch Jews

Gopher: lubavitch.chabad.org

This is a gopher site for information regarding Lubavitch Jews. Readings from the Torah, customs for barmitzvah and articles on Lubavitch activism make this a good site for textual information on many aspects of Lubavitch life. There is even a guide to Jewish holidays.

SCIENCE

Jet Propulsion Lab (NASA)

http://www.jpl.nasa.gov/

Budding astronauts and all those with an interest in space travel can get access to NASA press releases, flight information and even pictures from this Web server maintained by NASA itself. News stories can be obtained as they break by finger to nasanews@space.mit.edu

The Daily Planet

http://www.atmos.uiuc.edu/

Brought to you by the Department of Atmospheric Sciences at the University of Illinois, this server has meteorological maps, satellite images, pointers to sources of climactic data and 'instructional modules'. Although aimed at the serious sky watcher, this is also a good place to pick up titbits to toss into general wather chat. This site also has one of the best designed contents page graphics on the Net.

The Magellan Mission to Venus ☆

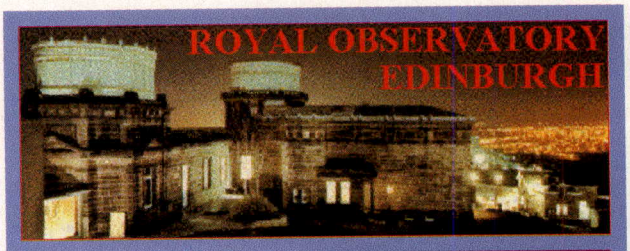
http://newproducts.jpl.nasa.gov/magellan/

News releases and historical footage taken from the first planetary spacecraft lanched from a space shuttle. There are enough images, animations and technical documents on Venus and the project itself to satisfy even the most ardent astrophile. However, don't bother if you're looking for evidence of extraterrestrial life forms. Apparently those photos are kept in a secret vault called the X files. The mission recently concluded with the craft resting in pieces on the surface of Venus.

National Science Foundation Net Statistics ☆

gopher://nic.merit.edu:70/1/.nsf-info

Historical statistics of traffic traversing the NSF Net, which are easily loadable into spreadsheet format.



Royal Observatory, Edinburgh

http://www.roe.ac.uk/

At this site, the main attraction for the layperson is the superb collection of photographs taken from telescopes around the world. Detailed pictures of constellations and nebulae, usually the preserve of academics, are here for everyone to see. Each picture loads on your screen as a thumbnail and a simple click on the image of your choice will give you a diamond-sharp enlargement. The home page states it is getting over 5,000 accesses each week, from over 30 countries. It is a superbly designed for the professional astronomer and there are plenty of things to interest the non-specialist.

South Pole

http://www.deakin.edu.au/edu/msee/genii/nspt/nspthomepage.html

Here you'll find the bi-weekly newsletter of the Amundsen-Scott South Pole Station in the Antarctic.

The Solstice Home Page

http://solstice.crest.org

This is the site for renewable energy and sustainable IT. It lists Internet resources for those who are interested in alternative energy, as well as discussions of such issues as non-motorised vehicles in Asia and a tour of photo-voltaic installations in Switzerland. Perhaps this is not the most dynamically designed site, but full of information. It can also be accessed by Gopher at gopher.crest.org and anonymous FTP at solstice.crest.org

Space Systems Laboratory ☆

http://ssl.umd.edu

This gives a brief overview of studies into the applications of telerobotics in space which are currently being carried out at the University of Maryland. Better still, use the link to NASA to get a more coherent and comprehensive presentation of the scope of these projects.

SHOPPING

Burlington Coat Factory

http://www.coat.com

This is an experimental service being run by a US 'outerwear' retailer – "This is a work in progress and is subject to changes in focus" warns the home page. The service offers users store location information and access to an illustrated catalogue of the merchandise on offer. Berlington also want feedback on the service.

Downtown Anywhere

http://www.awa.com/Shopping/Library

A place where you can 'browse, learn, share and trade' or, more elliptically, it's a 'virtual salon for the marketplace of ideas'. One of its best selling-points of this location is the shopping opportunities. You can buy a range of books and equipment, or how about a WWW T-shirt, just $13.95 from the Downtown Anywhere Souvenir Shop? If you decide to buy, you can pay by credit card or open a DA account so you can't overspend your limit. There's also a library, museums, a financial district and a sports arena. It takes time to find your way around any new place but exploring the streets of DA is both fun and worthwhile.

Estate Agent

http://www.gems.com/realestate/greg/20/1r.r.20.3.html

Fancy moving to South Africa? That spare 4,250,000 Rand will come in handy to purchase a rather bijou little thatched cottage that's on offer there at the moment. Unlike their honest and straightforward counterparts in the UK, these realtors are unconstrained in their prose. Unfortunately, only three of the nine bedrooms are en suite and only two of the four garages have automatic doors, so this property couldn't exactly be called luxurious and you might want to look elsewhere. There are some nice photographs, though, which you can download as you visit each room.

EuroDollar

http://www.eurodollar.com

You'll need to watch this space, because 'services will be appearing here as soon as they are developed'. At the present time, the only web service available is a rental office branch list and a form for a EuroDollar charge card, but the company has big plans for developing its Net connnections and this promises to become a model example of a good commercial application.

Glass Wings ☆

http://www.aus.xanadu.com/Glasswings/welcome.html

A trial virtual shopping mall – it's sparse but shows promise of better things to come. Polyester Records offer a large indie selection by email, and you can order popcorn in flavours like Black Cherry and Honey Onion Mustard from Myers Popcorn. However, the site is primarily a showcase for Lee Perkins' game reviews.

Internet Presence and Publishing

http://www.ip.net

A zany, collection of online shopping services. You have to wend your way through a fair bit of claptrap to get anywhere interesting – they're going to learn not to do this soon. This is Herbal Care meets Macintosh software Meets Beavis and Butthead. All the outlets have forms, but so far this is more a shop window than a shop, but if you like this sort of thing...

Internet Shopping Network

http://www.internet.com

Don't be fooled by the name, it's not much of a network: more of a catalogue of computer-related products from 600 suppliers. European browsers can only wonder at some of the low prices. At present, ISN won't deliver outside the US but it was recently taken over by the TV Home Shopping Channel, so watch out for synergies developing soon.

Linux IT Catalogue

http://www.fintronic.com/linux/catalog.html

An example of how to use the Internet to sell from a catalogue – in this case, low-cost Unix workstations. As well as a detailed list of what products and options are available, there's advice about how to choose the system that meets your needs and references to Linux's trade press coverage. The latest catalogue is also available via finger at linux-sales@fintronic.com

Multimedia Ink Designs

http://mmink.cts.com/mmink/mm.html

One answer to the question of commercial use of the Internet, Multimedia Ink Designs' home page offers access to a series of small businesses that offer goods from 'socially responsible' coffee to earrings. The virtual equivalent of the trendy Lakeshore Arcade, this page is wholly American: none of the sellers seem to offer international shipping or prices. Lisa includes pictures of her earrings, others provide order forms, some just text. Although a small site, this may give you an idea for how the Internet can provide commercial uses.

Net T-shirt

http://http.cs.berkeley.edu/~tsph/tshirt.html

Yes, these pages are about T-shirts. It's not exactly Carnaby Street but you can pick up this year's fashion item to die for – the Anti-Clipper T-shirt. Or do you see yourself in the 'Internet Smiley' – it carries a lot of cachet in some circles, so I'm told. In fact, I almost bought the 'Cypherpunk' design for a friend, until I realised that, although I could place the order instantaneously, there is, as yet, no way of sending the T-shirt itself down the line in time for his birthday on Friday.

The NetMarket Company

http://netmarket.com

If some of the shopping centres you go to on the Internet are brash and pushy like the Argos catalogue, NetMarket has the 'shy-sell' feel of a charity Christmas gifts brochure; it prides itself on high quality at reasonable prices. There are currently five shops: Noteworthy Music (CDs), 800-The Rose (florist), Les Vignerons (wine), The Space Between (books on UFOs, lost worlds, secret societies etc) and Sovereign Records. You can buy on-line and the CDs are certainly cheap, but when you add P&P, you sadly realise you'll get a better bargain at HMV. NetMarket also deserves a visit because it's the first company on the Internet to support automatic public key encryption for credit card transactions.

Online Career Centre

Gopher: gopher msen.com

Users job hunting in the US and Canada can go to the Online Career Centre. The opening menu invites you to browse profiles of companies that are actively recruiting staff. There are sections on how to construct a CV, job vacancies classified by state or city, many complete with contact names, a full job description and an email address. Once you have written your CV you can post it to thousands of potential employers or a carefully targeted few. Each CV posting lasts for 90 days, after which it is removed. If you are still searching, simply re-submit it. Other menus give access to career assistance, employment events and many more. A great example of how an Internet service should be run.

SPORT

Australian Cricket Page ☆

http://www.physics.su.oz.au/~mar/cricket.html

A wealth of pointers to cricket gophers for those despairing at the dominance of American sports on the Internet. Up-to-date reports on international and domestic matches. For expatriates, a concise guide to cricket broadcasts from Radio Australia and a great site to pick up the overnight Ashes report.

Abdominal Training ☆

http:/www.uq.oz.au/misc.fitness/abdominal-training.html

Get 'abs like ravioli' – am excellent interactive analysis of stomach shaping from Queensland University.

Liverpool FC

ttp://www.rpi.edu/~sathes/lfc.html

Good example of one of the proliferating UK football club Web services – all of which seem to the work out of the UK's top educational establishments. The Liverpool pages include fixture lists, up-to-date match reports, honours histories, team and manager photographs. Plus a collection of notable quotes from, as the Web

service puts it, Scousers and non-Scousers alike.

Sport Virtual Library

http://www.atm.ch.cam.ac.uk/sports/webs/html

Courtesy of the Centre for Atmospheric Science at Cambridge University, this is the most extensive set of links we've found to sports information on the Internet. If you can play it, it's on here (where do they find the time to do any atmospheric science ?). Take football, for example. Not only are all the UK club servers listed, but there are extensive links to football pages all over Europe and the United States. Other sports covered include American football, baseball, rugby (union and league) cricket, tennis, cycling, rowing, orienteering, windsurfing, skiing, rock climbing, scuba diving, car rallying, white water rafting, and more. There is also a set of local users' alternative home pages and these usually yield some interesting Internet nooks and crannies.

SUPPORT

Samaritans

Email:jo@samaritans.org

Use the Internet to email the Samaritans in the UK, also on samaritans@cix.compulink.co.uk or telephone 0242 515777. The service follows a successful email test service run in the summer of 1994. For complete discretion, try the anonymous email server at samaritans@anon.penet.fi, although you may have to wait for a reply.

Missing Kids Database ☆

http://www.gems.com/kids/ncmec.html

This noble cause suffers in that the missing US children are listed by name rather than presented in mug-shot panels. Pictures are only accessible after clicking on the regionally sorted names. However, this is an example of a truly functional server.

TOOLS & INFO

About the Internet

http://www.internic.net/infoguide/gopher/about-internet.html

A good starting page if you wish to delve into the history of the Internet or just generally learn how it's set up and who runs it. This is for the 'up and running' traveller and is not a 'how to' guide (there are plenty of those already). There are pointers to Internet organisations with other links to their sites. For the technically voracious, there are links through to the InterNIC Directory and Database services which contain Internet documentation. It has a link to Internet culture and 'netiquette'; connections to information on 'Internet personalities'; and Net archives, including the Internet monthly reports.

Amiga Mosaic

http://www.commerce.digital.com/palo-alto

The Commodore Amiga is one of the many machines that has now had a client ported to them. The Amiga Mosaic home page provides access to the FTP archive where the program is located, allowing users to quickly and simply download the latest version. Also provided is a complete overview of the program, including embedded screen-shots – a kind a of 'view before you download'. Interested users may wish to join the Amiga Mosaic mailing list by sending mail to witbrock@cmu.edu

Archie

http://web.doc.ic.ac.uk/archieplexform.html/

Archie is a widely-used system that allows users to search anonymous FTP sites for specific files. Imperial College has built an Archie search utility into its FTP site. A simple search can be performed by any WWW client, but for full searches, users require a forms-compatible client software such as Mosaic version 2 or MacWeb.

Cello

http://www.law.cornell.edu/cello/cellotop.html

This site is the home page for the Cello Internet Web browser for Windows users. Cello is primarily a Web client, but also offers built-in support for FTP, NNTP news, phone servers and Gopher. Optional utilities can be used to extend this to WAIS, Hytelnet, Telnet and Telnet 3270.

CU-seeme

FTP: gated.cornell.edu

CU-seeme has caused quite a stir around the Internet because it offers public domain video conferencing. Client applications for both Macintosh and Windows exist for viewing the video. To broadcast video you need a Video Spigot (Macintosh) or Windows multimedia-compliant video card (PC).

Elnet

http://galaxy.einet.net/

Elnet's Web site not only houses the latest versions of its Macintosh and Windows Web clients (MacWeb/WinWeb) but also a whole host of information on topics as diverse as architecture and current affairs.

For Your Information

FTP: ftp.nic.nnsc.nsf.net/fyi/fyi_04.txt

I've just got on the Internet – what can I do? What's a Gopher? What's the World Wide Web? How do I find someone's email address? This file sets out to answer the questions commonly asked by new Internet users and it does so in a reasonably clear and accessible way. It also deals at some length with the evolution of the Internet and explains how technical and policy issues are decided but, again, this information is fairly easy to digest.

When you complete the online fax form, the recipient's name and address is converted to an email address and then routed to the nearest destination computer. This, in turn, restores the message back into fax format and transmits it through the local telephone network to the addressee's fax machine. That's the theory, but we're still waiting for our test faxes to turn up...

Global Network Navigator

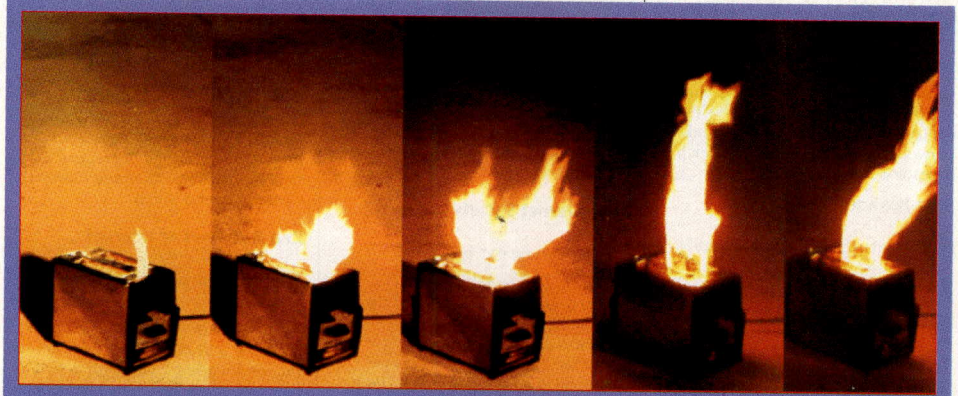
http://www.gnn.com

One of the Internet's most valuable Web servers, and so an essential addition to your hotlist. From deep in the heart of California wine country, GNN has carefully organised links to a host of useful places around the Internet. Included in the service is access to the inimitable Whole Internet Catalogue, a large classified directory of what's on the Web. Of particular note is the regularly updated what's new section. Other GNN features include Digital Drive In, a section about movies on the Internet, and NetNews, a weekly roundup of Internet news.

Graphics for your pages

http://www.rfhsm.ac.uk:70/0/people/gifs/index.html

Useful GIFs to use in Web page design. Rather than copying the GIF directly into your HTML directory, each image can be referred to by using its unique URL. Included are paragraph dividers, icons, arrows, buttons and dingbats.



Strawberry Poptart Toaster Flame Thrower Experiment

http://cbi.tamucc.edu/~pmichaud/toast/

Here it's done by a set of superior minds with the correct laboratory procedure, but if you intend to try this at home, be sure to call the fire brigade in advance.

CERN

http://www.cern.ch

Cern, the European Laboratory for Particle Physics in Geneva, is the home of, and the definitive source of, information about the World Wide Web, which was originally developed by Tim Berners-Lee as a tool to aid collaboration in physics research. The Cern Web server there contains a wealth of vital Web information, including the extensive WWW Virtual Library (see the Libraries section).

CUI Index ☆

http://cui_www.unige.ch/w3catalog

Excellent text-referenced browsing tool maintained by the Centre Universitaire d'Informatique in Geneva. What the centre does is search through summaries of several web catalogues in order to produce comprehensive descriptions and links, which is rather good of it. The catalgoue currently contains 12308 entries.

Free Computer Reference

http://ici.proper.com

Internet Computer Index is a free reference service split into three sections for PC, Unix and Macintosh. We tried the PC Index, whose opening menu offered a dozen interesting places to go. The FAQ (frequently asked questions) section had 40 or 50 items alone on common PC problems.

Free Fax Service

http://linux1.balliol.ox.ac.uk/fax/faxsend.html

As with many Internet addresses this a fledgling service which is growing rapidly and seems to have huge potential. Balliol College, Oxford, is the home page for England for what's billed as a free Internet fax server.

Hitchhikers Guide to the Net

FTP: nic.merit.edu/documents/rfc/rfc1118.txt

This sounds as though it's going to be quite hip but in fact it's a fairly worthy 24-page treatise on the origins and operation of the Internet. For the uninitiated it goes some way to explaining what it's all about. But it's all rather dry and technical and lost us quite quickly. There are a few hints on how to be a good Internet neighbour but really it's one for the Net historians only.

IBM OS/2 ☆

http://www.ibm.net

This page is nothing short of what you would expect from industry

heavyweight IBM. There are links to travel, shopping, libraries, PC information, sports, news, cool and new sites, business advice and most things you can think of. However, be careful not to click on the home page point unless you really need a run-down on the products. This will be the home page for OS/2 users and is a great, though humourless, resource.

Internet Computer Index ☆

`http://ici.proper.com`

Limited information categorised by PC, Mac and Unix. Beginners may find it useful as a launch point for mailing list information and online publications. It also provides a search index for reviews in PC Magazine, but this only returns issues and page numbers and you might be better off reading a couple of printed monthlies.

Lockpicking ☆

`http://www.lysator.liu.se/mit-guide/mit-guide.html`

Thanks to the great minds at the MIT, a handy guide with diagrams on how to make tools to pick locks. What's next? How to get off a breaking and entering charge?

Lycos Database ☆

`http://fuzine.mt.cs.cmu.edu/`

A massive index maintained by Carnegie Mellon University and built using a web crawler. Index searches document titles, headings, links and keywords make it an essential launch base for your toolkit.

Map Browser

`http://pubweb.parc.xerox.com:80/`

Xerox PARC (Palo Alto Research Center) are the people who brought the world GUIs (Graphical User Interfaces) and ethernet. Their public Web site provides, among other things, a graphical world-wide map browser. This allows a user to find a specific location on the globe, and obtain a map of it showing rivers, borders, and other information.

Music Virtual Library

`http://www.oulu.fi/music.html`

This one modestly protests that it is redimentary, but there's a lot in it, including a comprehensive catalogue to all kinds of music information on the Internet, a MIDI home page, an online version of the All Music Guidebook, and homes pages for a host of artist, from Tori Amos, through Kylie Minogue, to Frank Zappa.

NCSA

`http://www.ncsa.uiuc.edu`

Home of Mosaic, the most widely used Windows and Macintosh-based Web browser. At this site you'll find the latest versions of the full range of Mosaic-related tools, including the GIF, JPEG viewers, video and sound players. The documentation on offer at NCSA ranges from the simple to understand to the highly-detailed. One of the Web world's two most important sites.

Oulu, Finland ☆

`http://www.ouka.fi/cityinfo_e.html`

Gifts for Dog Lovers

`http://www.onramp.net/imagemaker`

Forget the Doc Martin Megastore, this is Christmas shopping 1994! From the cute to the obsessively bizarre, email-order dog-embossed paraphernalia, including boxer shorts and lampshades. No breed too obscure.

Oulu is apparently the largest city in northern Finland, although with a population of just over 100,000 it can't exactly be a heaving metropolis. For business travellers there is information on hotels and some data on local industry and commercial enterprises run by the city authorities, plus the usual run-down on the local council, schools, hospitals and the library.

Spry

`http://www.spry.com`

Home of the first commercial version of Mosaic and Internet in a Box.

The Internet Society

`http://www.intsoc.com`

Home page for the organisation that coordinates the development of standards and codes of conduct for the use of the Internet. Its members are both individual and corporate. There are two parts to the Internet Society service: detailed information about its own activities; and an encyclopedic collection of information of how the Internet is developing around the world. In one way the Internet Society pages are setting a poor example: when we were last there, they hadn't been updated for almost two months.

The InterNIC

`http://www.internic.net`

A service which provides information about accessing and using the Internet, and also about connecting your own network components to it. This service is provided by heavyweights AT&T, General Atomics and Network Solutions, and it's a very useful starting-out point for beginners.

Today's Cool Site

`http://www.infi.net/cool.html`

Another day, another site, according to one Glenn Davis. A nice touch – not always on offer – is the ability to switch to a text-only version, thus avoiding sluggish communications.

Veronica

`Gopher: gopher.scs.unr.edu`

Veronica (Very Easy Rodent-Oriented Netwide Index to Computerised Archives) is a service that performs key word searches of Gopher menus. The results of such searches are presented back to you as a list of Gopher menu items that you can then select from.

Voice Synthesiser

`http://utis179.cs.utwente.nl:8001/say`

If you've not used a voice synthesiser before this is your chance to try one out. On the first page, type in a word or phrase. Then the system presents you with a player designed in tape-deck style. Just press play and the phrase will be played back through your PC speaker. Full marks for ingenuity, however, because this system has been cobbled together with bits of PD software.

World Wide Web Wanderer ☆

`http://www.mit.edu:8001/afs/sipb/user/mkgray/ht/web-growth.html`

This provides links to 1265 http sites, sorted by country. However, other than the site code no other information is supplied, so it is a bit like throwing a dart. It's probably useful if you're after regional information or just want to browse randomly for fun.

WWW Worm

`http//www.cs.colorado.edu/home/mcbryan/WWW.html`

Based at the University of Colorado, this server offers several good ways to search the Web – including what's billed as the Mother of all Bulletin Boards. There is a huge selection of BBSs listed, including the bizarre entry for the Adonis Kebab House, Cardiff! Certainly one to watch.

Zen & the Art of Internet

`FTP: ftp.csn.net/pub/net/zen`

A free ASCII or Postscript version of this book is available from this FTP site. Excellent reading if you wish to find out more about the Internet, including such topics as TCP/IP and domains.

TRAVEL

PCTravel ☆

`telnet://pctravel.com`

The first publicly available free airline reservation and ticketing service. You can access the Apollo Reservation System to book from a choice of over 500 airlines. Once booked, your ticket can be Fedexed to you from the US.

World's Largest Subway Map ☆

`http://metro.jussieu.fr:10001/`

Pick from a selection of major cities, choose a starting and finishing destination and the algorithm will estimate the travelling time. A fun idea but useless in practice, due to assumptions such as immediate connections and homogenous flow. "What about signal failure?" I hear you ask? However, this is one of those sites that's often used as an example of the vital information jet-setters can currently glean from the Internet.

US Travel Warnings and Consular Information ☆

`http://www.stolaf.edu/network/travel-advisories.html`

This provides essential information if you're travelling to any potential hot spots but is not a definitive guide to safety.

UNIVERSITIES

Bradford University

`http://www.brad.ac.uk`

Nicely-produced Web service that includes city information – complete with pictures as well as links to its main departments. There's also access to personal home pages, which are always a good source of links to unexpected places.

Cambridge University

`http://www.cam.ac.uk`

Cambridge is the UK's biggest centre of Internet use, both in and around the university and this is the home page for the main university server. Through a Gopher menu, there's probably the UK's most comprehensive collection of local information: from railway timetables and bus services to lists of chemists, dentists, music venues, and much, much more. Alas, no personal home pages yet.

Liberty

`Telnet: liberty.uc.wlu.edu`

The Liberty server at Washington & Lee University in Virginia provides a Telnet Gopher service. For those researching a specific subject, this is an excellent starting point.

MIT

`http://www.mit.edu`

This is one of the most worthwhile university Web servers to visit because it includes a large number of student and staff home pages with links to the complete gamut of Internet activity. One quick way to see into the outer reaches of the Internet world is through the MIT students' home pages on the Student Information BoardWorld (SIB).

Sheffield University

`http://www2.shef.ac.uk`

This demo server is running, the home page announces proudly, on a Macintosh SE/30. There are links to the university's main departments plus some local information. Modest by, say, Bradford and Cambridge standards, but the Sheffield server does contain what's probably the world's most honest Web page. When we looked, and clicked on What's On at SU Union, the page came up with the message, 'The information provider for this section is on holiday.'

Sigweb UK & I

`http://www.qub.ac.uk/sigweb/index.html`

This service has been set up to foster relationships between researchers and developers from colleges in the UK and Ireland. It is excellent for locating UK and Irish servers, with active maps.

Warwick University ☆

`http://www.warwick.ac.uk/`

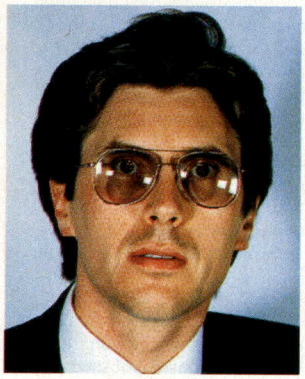
Information about the university's activities, including limited staff and course details. <ends>

Internet events

Want to find out more about the Internet? Here we preview all the Internet-centric happenings over the coming weeks

PRACTICAL SEMIMARS

Internet for Your Business/Running a Successful TCP/IP Network December and January



Integralis' Kevin Washburn

INTERNET and Integralis have joined forces to produce two important half-day seminars: *Running a Successful TCP/IP Network* and *Internet for Your Business*. Together, they are designed to equip the corporate network manager with most of what they need to know about using Internet technologies for better intercommunications and for doing business. The events are running in Reading (5 December at the Ramada Hotel) and London (10 January at the Novotel, Hammersmith).

Running a Successful TCP/IP Network is a morning session presented by Kevin Washburn, author of the book *TCP/IP: Running a Successful Network*. TCP/IP provides greater connectivity than any other protocol and is the basis of Internet communications.

The seminar is practical in nature, considering not only the terminology and technology but also its application.

Topics to be covered include: architecture of TCP/IP, management issues, IP addressing, protocols (TCP, UDP, IP, ICMP, ARP), application layer services, management protocols and network configuration.

In the afternoons, *Internet for Your Business* features **INTERNET** editor Neil Ellul speaking on the challenge of the Internet: why it's set to become an important business tool.

The rest of this session is based on Integralis's experience as a Eunet reseller, in providing full Internet services for customers: not only the connections, but the protective firewalls, dedicated web servers and selecting the right PC software.

The seminar will provide delegates with a working knowledge of all of the major Internet buzz-words, including: MIME, HTTP, HTML, Telnet, FTP, Usenet, Archie, Veronica, Gopher, WAIS, Mosaic, WWW, Finger, Whois, security, firewalls, application gateways, router filtering, acceptable use, netiquette, copyright and legal issues and the question of pornography.

Both seminars will feature – hotel telephone lines permitting – demonstrations of TCP/IP networks and live access to the Internet.

Each session costs £60 or £95 for the whole day's programme of two events. Prices include lunch and a free copy of Kevin Washburn's book, TCP/IP: Running a Successful Network. To make your reservation, contact Karen Liddell at **k_liddell@integralis.co.uk,** tel 0734 306060 or fax 0734 302143.

TOURING SEMINAR

Unipalm National Road Show 1 – 15 December

David Barrett of Unipalm explains, "The purpose of the road show is to inform IT managers, who may be nervous about setting off down the much-hyped, and largely notional 'infobahn', of the real potential business benefits of the Internet."

The seminars are being staged in co-operation with FTP Software, NCD and Firefox - the company which produces the NOV*IX Internet access add-on for Novell networks.

Each seminar features a core 'orientation' session; corporate case studies; and presentations about the latest Firefox and NCD products.

The December leg of the Unipalm tour covers Swindon (1 December) Exeter (6), Cardiff (8), Dublin (13), and Belfast (15).

The event costs £45. For details, contact Unipalm by sending email to **pippa@unipalm.co.uk** or, alternatively, tel 0500 567000.

EXHIBITION

Online Information '94 6 – 8 December

This year's Online Information exhibition at Olympia in London will feature an Internet Village. Exhibitors now confirmed include CityScape, Eunet, Dante, Demon, Easynet, Electronic Press, Eros, ICL, Prentice-Hall, ReNet and Soft Options.

The 18-year-old event will also include a strong Internet flavour in its conference sessions. A special tutorial on Internet Use and Abuse will cover the policing and netiquette of the Internet, along with issues like security, encryption, commercialisation, and intelligent agent navigational aids. Payment Services for Global Online Systems will bring together a panel representing some of the world's largest credit card processors, electronic funds transfer companies and encryption device manufacturers. They will discuss how credit card payments for services delivered on the Internet can help grow the use of online services.

Other sessions of the mainly academic conference will look at the use of the Internet for school libraries; hear accounts of the development of Internet use in Eastern Europe; and consider how the Internet can be linked up to interactive television services.

For more information, contact Learned Information at registrations@learned.co.uk, tel 0865 730275 or fax 0865736354.

BUSINESS SEMINARS

Networking and Telecommunications Convergence 28 February – 3 March 6 – 8 December

Unicom Seminars has a strong Internet theme running through its Networking and Telecommunications Convergence series of seminars and workshops being held at the end of February at the Cumberland Hotel in London. The seminar titles are:

- Trawling the Internet
- Commercial Impact and opportunities
- Get Your Hands on the Internet
- Publishing for Profit on the Internet
- Shopping in Cyberspace
- Virtual Private Networks

For information, contact Unicom Seminars at **unicom@unicom.demon.co.uk** tel 01895 256484.

The Internet Means Business 13 – 14 March

ICM Marketing, in association with **INTERNET**, is running a major two-day conference for financial, business development and IT directors of organisations involved in publishing, print and broadcast media, finance, communications and retail.

The event's sessions are designed to help delegates see how the Internet could benefit their businesses. The conference sessions so far lined up will include:

- Selecting an Internet provider for your business
- Effecting transactions on the superhighway
- Commercial and legal issues of doing business on the Internet
- Medical training and remote operations using the Internet
- Co-writing reports using the Internet
- Encryption and piracy
- Marketing, advertising and merchandising on the Internet
- Branding and product differentiation

The UK political dimension: will Britain choose to keep pace with the rest of the world ?

The international line-up of guest speakers will include the following:

David Birch, director of business development at Hyperion; Mark Hugo, head of sales and marketing, Pipex; Chris Ray, IT operations manager of Loot; Geoff Ace, global network director, IBM; Mark Sherwood-Edwards, barrister at Simon Olswang & Co; Peter Buck, consultant at Hyperion; Ian Watson, information services manager, Caledonian Newspapers; Sami Shimi, consultant surgeon and senior lecturer in surgery at Ninewells Hospital and Medical School, Dundee; Paul Vizza, president, Electronic Newsstand; and Anne Campbell MP.

The event costs £695 and takes place at the Park Lane Hotel in London. For full details contact ICM Marketing, tel 01483 77107.

Diary

Dates to make a note of...

Date	Event	Venue	Contact
1 Dec	Unipalm Seminar Series	Blunsdon House Hotel, Swindon	David Barrett Unipalm 01223 250100 davidb@unipalm.co.uk
5 Dec	Internet For Your Business/TCP/IP: Running a Successful Network	Ramada Hotel Reading	Karen Liddell Integralis 01734 306060 k_liddell@integralis.co.uk
6 Dec	Unipalm Seminar Series	Lord Haldon Hotel, Exeter	David Barrett Unipalm 01223 250100 davidb@unipalm.co.uk
8 Dec	Unipalm Seminar Series	Celtic Manor Hotel, Cardiff	David Barrett Unipalm 01223 250100 davidb@unipalm.co.uk
6-8 Dec	Online Information	Olympia 2 London	Caroline Govaert 01865 730275
13 Dec	Unipalm Seminar Series	Finnstown Country House Hotel, Dublin	David Barrett Unipalm 01223 250100 davidb@unipalm.co.uk
14-15 De:	The Information Highway	US Embassy London	Seamus Flanagan Unicom 01895 256484 unicom@unicom.demon.co.uk
15 Dec	Unipalm Seminar Series	Culloden Hotel Belfast	David Barrett Unipalm 01223 250100 davidb@unipalm.co.uk
10 Jan Network	Internet For Your Business/TCP/IP: Running a Successful	Novotel Hammersmith, London	Karen Liddell Integralis 01734 306060 k_liddell@integralis.co.uk
25-27 Jan	Getting the Most Out of the Internet	Regents Park Hilton Hotel, London	Sandy Maclean OmniCom PPI 01438 742424
31 Jan - 1 Feb	Exploiting the Potential of the Information Superhighway	Marriott Hotel, London	Paula Munsie IBC Financial Focus 0171 637 4383
21-22 Feb	Internet Business Briefing	Meryll Lynch Building, 25 Ropemaker St London WC2	0171 253 6935
21-22 Feb	The Information Highway	US Embassy London	Seamus Flanagan Unicom 01895 256484 unicom@unicom.demon.co.uk
28 Feb - 1 March	Trawling the Internet: The Commercial Impact & Opportunities	Cumberland Hotel, London	Seamus Flanagan Unicom 01895 256484 unicom@unicom.demon.co.uk
2 March	Shopping in Cyberspace	Cumberland Hotel, London	Seamus Flanagan Unicom 01895 256484 unicom@unicom.demon.co.uk
3 March	Publishing for Profit on the Internet	Cumberland Hotel, London	Seamus Flanagan Unicom 01895 256484 unicom@unicom.demon.co.uk
2-3 March	Get Your Hands on the Internet!	Cumberland Hotel, London	Seamus Flanagan Unicom 01895 256484 nicom@unicom.demon.co.uk

A MATTER OF CONVENTION

Paul Lavin reports from the World Wide Web convention in Chicago, while Tony Dennis took a trip to Comdex in Las Vegas

World Wide Web held its second convention in Chicago last month, and all in attendance seemed to agree with keynote speaker Paul Evens Peters that the Web was getting 'good enough to use'.

Peters predicted that the value of the Internet and the Web will increase as the number of users and their diversity increases, and he reiterated the forecast that Web traffic, world-wide, will exceed voice telephone traffic in the next two to three years.

Also speaking was Cern's Tim Berners-Lee, who is credited with the invention of the Web (see the interview with the man himself on page 26). He emphasised the need for reflection on the social and ethical issues presented by the Web and he outlined the role of the newly founded W3 steering group.

Berners-Lee signposted significant advances yet to come in automatability, extensibility, scalability, efficiency and robustness, all necessary before the Web reaches truly global dimensions. However, he cautioned that this must be accomplished with authentication, privacy and network integrity.

Despite the fact that a great deal of the convention action came from government and educational institutions - after all, they were the primary agents of the Web's initial growth spurt – judging from the buzz at the event, real commercial exploitation of the Internet is just about to happen.

A number of major vendors were touting their wares in Chicago. IBM was busy showing off Web Explorer, now bundled in a free BonusPak with the new OS/2 Warp, while Digital hawked its firewall package. Digital is also bundling a Web browser with every PC sold in the US but there was no word as to whether this policy would be extended to the UK. Microsoft's reps were promoting NT as a Web server but could not say when the product would be released or supported.

Educators and publishers were also out in force but came across like turkeys voting for an early Christmas as the sweeping changes the Web is bringing about will deeply affect their endeavours.

There appeared to be some contention over who will set the standards for Internet World Wide Web browser software in the future. Today, most browsers are free for the asking but, as Web access becomes part of the portfolio of business tools, users will demand software they can depend on, which means support, an assured development path and no bugs. After getting decent performances out of run-of-the-mill 14.4 Kb modems, the primary focus of the new browser contenders, like Netscape Corp's Netscape, is to get people to pay for what can currently be had for free (Netscape will be available for £99 from Pipex next month).

While many new and interesting products were springing to life, the convention also saw the demise of at least one ambitious idea: MecklerWeb's Bill Washburn was put in the unenviable position of addressing a seminar on *The Commercialisation and Economics of Web* having just read in the Wall Street Journal that he was almost certainly out of a job because, while enthusiasm for the Web is high, big time customers are few and far between.

Before large- or small-scale commerce is possible on the Web, questions about security and payment must be answered. First Virtual Holdings, DigiCash and CyberCash are all competing for a place in the Net economy but their transactions may not be micro- enough. All provide a link to present credit cards and so suffer from a pre-Net cost structure.

It is not clear which Internet payment system will win out but the backers of each system are taking pains to make it clear that there is room for several.

Web browser software is adept at taking plug-in software modules and provisions are being made to make sure that any form of electronic payment will move money.

Other Web-related problems (or in American, challenges) aired were the perennial difficulty associated with finding what you are looking for. This is especially so when Web URLs go dead after a brief amount of time, but Sourcerer/Apprentice, Harvest, WebMap and Web Link were all proposed as partial solutions to the 'find it' conundrum.

This, the second gathering of WWW tribes, gave a glimpse of an online future that can deliver real value to businesses and individuals, so roll on the day that teleworking and teleshopping replace queues on the M25 and air pollution. Another convention is scheduled for April in Darmstadt, Germany.

Comdex Fall '94 Las Vegas

Net addicts were constantly assailed with manufacturers' claims that they had the best and easiest Internet access software at the recent Comdex Fall 94 computer show in Las Vegas.

Net service provider, Netcom On-Line Communication Services, lead the pack, offering NetCruiser software packaged with guidebooks - Access the Internet by David Pearl and What's on the Internet by Eric Gagnon. The NetCruiser software has all the usual Net facilities, including Netcom's World Wide Web (WWW) browser. It costs $44.95 but the catch for UK purchasers is it's aimed at connections via Netcom (Netcom: info@netcom.com).

Phoenix Internet Express may be better for the UK user, providing standard Net access tools, and is allied to Delphi which is available locally. (Phoenix, tel: 0101 617 551 4000).

Service provider America Online liked the InternetWorks Pro comms suite so much that it bought the company which produced it - Booklink Technologies. InternetWorks costs $129 but its makers claim it has plenty of unique facilities, such as downloading documents during multiple Net sessions, and Windows drag-and-drop facilities, which allow you to move documents into a Net session by mouse. Additionally, Internet Works will link the purchaser directly to an electronic Internet Yellow Pages facility (Booklink, tel: 0101 508 657 7000).

Not to be outdone, Netscape Communications claim Netscape Network Navigator 1.0 is the Internet's killer application. Netscape, formerly Mosaic Communications, employs most of the original Mosaic design team and has the built-in security its rivals lack (Netscape: info@mcom.com).

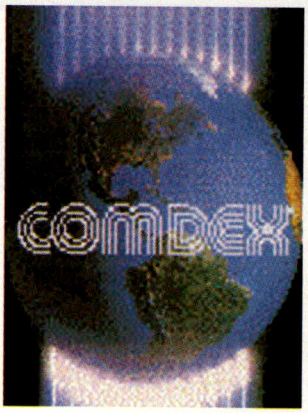
Worth investigating for email, Internet Connection from ConnectSoft enables the user to email any PC system. It links to Netware MHS, Lotus cc:Mail, CompuServe, MCI Mail and MAPI (for Microsoft Mail), under Windows. To save switching packages, ConnectSoft promises to include FTP, Gopher and a WWW browser in version 2.0, working via modem or lan. (ConnectSoft: http://www.connectsoft.com).

Want to build a Net server without learning Unix? Beame & Whiteside believes the answer is BW-Connect NFS for DOS and Windows. The latest version has a built-in World Wide Web accessible by Mosaic, a Gopher server, support for TFTP (Trivial File Transfer Protocol, to transfer small items not complete files) and the Network News Transfer Protocol (NNTP) (for reading NNTP Internet news groups).

For email, BW-Connect supports MIME (Multipurpose Internet Mail Extensions), accepting various file types as mail messages, and is MAPI-compatible for swapping with Microsoft Mail or similar. BW-Connect handles standard Unix commands such as RLOGIN and REXEC, so Net experts can communicate directly with your PC host server. The package costs $349. (B&W: sales@bws.com).

Emerald Software offers a way out of the catch 22 for InterNet novices. All the best Net software is available online over the Net, but how do you start? The answer, a $39 CD-ROM called Internet Access, not only contains the popular Windows Web browsers such as Mosaic and Cello, but also an Internet guide with tutorials to help newbies. Emerald claims the 1995 updated CD has thousands of important information files. (Emerald 010 1 617 246 6767).

ISDN*tek is driving down the cost of high-speed Net access in the US with its CyberSpace Internet card, a low-cost ISDN adapter (US $395). This half-size PC card works with Windows or OS/2, is supplied with a Windows driver conforming to the new WinISDN API (Applications Program Interface) created by Performance Systems International and NetManage, and will work with WinISDN-compatible software such as the latest release of Chameleon, version 4.03. The CyberSpace card only uses one ISDN B channel. To use both you need



ISDN*tek's CyberSpace Commuter card. Presently, these products only work with US-based ISDN service providers (ISDN*tek, tel: 0101 415 712 3000).

Online Computer Market, launched at Comdex, has created an online shopfront to trade PCs. It offers Online Pages, to advertise to WWW users, and PC Advisor, for PC prices. PCs Compleat, the PC catalogue company and DCI (running the January 1995 Web World trade show) are the first companies to use Online Pages. Online Computer Market will soon feature Power Buyer, to buy PCs, and Online Expo, a 'virtual trade show'. (Online Computer Market: http://www.ocm.com).

If you are lucky enough to live in California, you can attend an Internet crash course given by Eric Theise. He runs Liberty Hill Cyberworks, specialising in creating Internet storefronts for customers. The courses are organised by SJS Resource Strategies (sjsmba@netcom.com).

New Net suite from Turnpike

A UK software company, Turnpike Ltd, chose Comdex Fall in Las Vegas to launch its suite of Net facilities, known collectively as Turnpike. The software is aimed at the home or small business user and the company maintains its major feature is the ability to read and prepare email messages offline.

Turnpike is intended for dial-up Internet access and will first be made available in the UK through Demon Internet.

According to Graham Davies, Demon's marketing director, "Turnpike offers a lot more than existing email software. What's more, it's available at a sensible price."

A single user version of Turnpike costs US$125 while a multi-user version for five network users will cost US$375. Besides email, Turnpike offers FTP, Telnet, Finger & Ping ,plus an offline news reader. However, it also provides Winsock so that users can run WWW front end software such as Mosaic.

Turnpike is a new subsidiary of Locomotive Software which produced the Locoscript wordprocessing software for Amstrad computers. It's based in Dorking, tel 01306 747747 and email jane@turnpike.com

Above: Internet vendors out in force at Comdex Fall 94
Right: attendees waiting to register for the second WWW convention

This month's step by step guide: Internet access

Just behind Tottenham Court Road lies the UK's first cybercafé, Cyberia, the focus of much recent media attention. Cyberia was created to give a non-threatening face to the Internet but its technical expertise comes from Easynet, a UK Internet access provider, conveniently situated next door. This month's Getting Started explains how to get online, the Easynet way

Quality of service

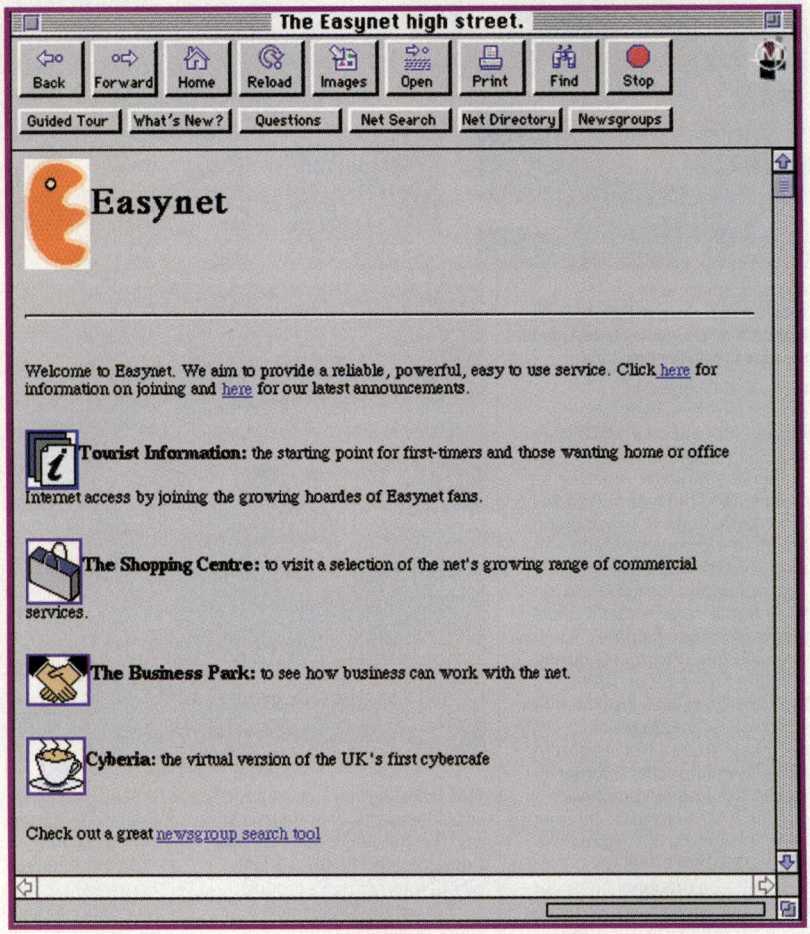
1 Easynet believes it offers the best user-to-modem ratio of the major Internet providers, and is committed to keeping it at 20 to 1, so that busy tones are avoided. Those familiar with the record of other Internet providers will be pleased to hear this! Support is provided on all aspects of the service, to ensure that newcomers or 'newbies' get online straight away.

In addition, Cyberia has a full set of Easynet software running in the café, so those people who are thinking about getting online can try out the service before buying, and receive help and assistance from the Cyberhosts and, of course, hostesses.

Unlike connecting to a BBS such as Compuserve, Delphi or the new Microsoft system, Marvel, users' machines are connected to the Internet at a network level, giving full unlimited access to the Internet and use of graphical browsers. There are also no online charges, so that a yearly subscription to Easynet in London costs £25 as a start-up fee plus £9.90 per month + VAT.

Monthly subscribers are charged £11.90 per month and must pay two months in advance. Outside Easynet's London POP, users are charged an additional £2 per month to cover costs to Pipex.

The minimum requirements are a PC which is capable of running Windows and with 6Mb of free disk space or a Mac with system 7.5 operating system.


The Easynet high street.
Back
Forward
Home
Reload
Images
Open
Print
Find
Stop
Guided Tour
What's New?
Questions
Net Search
Net Directory
Newsgroups
Easynet
Welcome to Easynet. We aim to provide a reliable, powerful, easy to use service. Click here for information on joining and here for our latest announcements.
Tourist Information: the starting point for first-timers and those wanting home or office Internet access by joining the growing hoardes of Easynet fans.
The Shopping Centre: to visit a selection of the net's growing range of commercial services.
The Business Park: to see how business can work with the net.
Cyberia: the virtual version of the UK's first cybercafe
Check out a great newsgroup search tool

2 The installation procedure

Subscribers to Easynet receive two installation diskettes, pre-configured so that the subscriber can get online with minimum effort. They also get an installation package including the Eudora mail package, a copy of Netscape for browsing the World Wide Web, Windows- or Mac-based news software, and more besides.

At present, it provides national coverage with POPs in London, Cambridge, Birmingham, Manchester, Edinburgh and Bristol. Each POP is connected by at least a 64Kbps connection to the Pipex backbone. To get online you need to call Easynet and the diskettes should arrive the next day.

Once you've got them, run the set-up program – it's called Easynet Installation. To do this, activate the Windows Program Manager and select the Run option from the file menu.

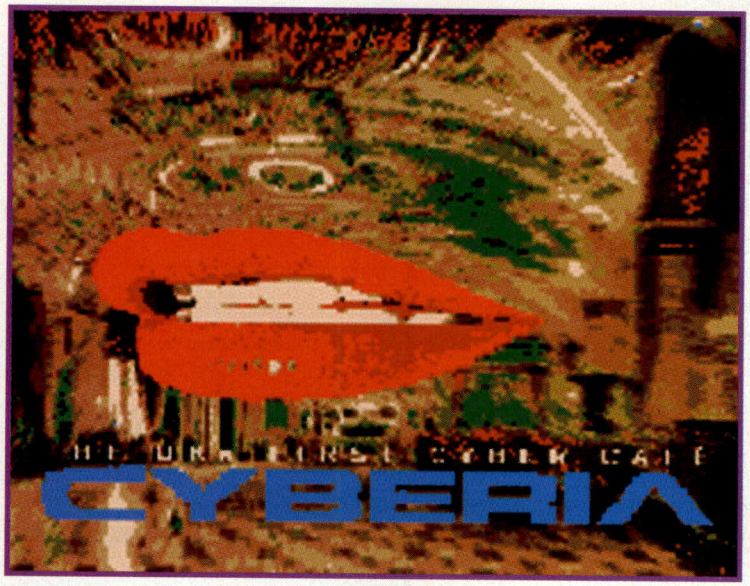
Program manager displays a box for you to enter the name of the program to be run. Type a:\install and press Enter. After a few seconds the Easynet installation displays a window on the screen and asks you to specify the directory in which to place Easynet.

The directory is automatically created and the Easynet programs are copied to your hard disk. A bar shown on the screen automatically moves from 0 to 100% as the programs are copied. Once they have been transferred, the set-up program automatically creates a new window inside the Program Manager window for the Easynet menu.

When the installation has finished, the installer will ask you for your Easynet account details, including your logon name, password, IP number, email address, com port, modem baud rate and whether you need to dial 9 for an outside line. All this information will be clearly written on an accompanying sheet.

Finally, press the 'Connect to Easynet' button. This will dial into your local POP and you can start surfing! There is no need to start up TCP, since the Easynet menu automatically starts up Trumpet Winsock and dials into the Easynet POP.

From the menu, you can select a World Wide Web browser (Netscape is the present offering), email (Eudora), newsgroups (WinVN News), Telnet (for connection to other services), as well as the ability to use FTP and Archie for searching for and retrieving files.



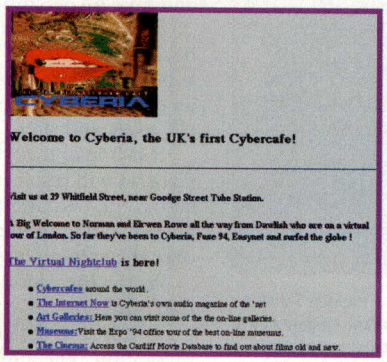
At Cyberia, the UK's first cybercafé, you can enjoy a coffee, a croissant and cruise the Net

3 Exploring the possibilities

Once you have installed the Easynet software, the menu system will guide you to the parts of the Internet you want to access. This reflects the Easynet philosophy of providing full power Internet access with an easy-to-use approach.

The menu itself allows upgrades of browsers, and it is also possible to use your own Windows or Mac Internet mail package. This means that you have the option to take advantage of advances in Internet software and upgrade tools as and when they come along.

Once on the Internet, the possibilities are almost limitless. Over 30,000,000 people can be reached by mail; there are 10,000 usenet conferences; 5,000 WWW sites; and these are growing all the time.


CYBERIA
Welcome to Cyberia, the UK's first Cybercafe!
Visit us at 39 Whitfield Street, near Goodge Street Tube Station.
A Big Welcome to Norman and Ekwen Rowe all the way from Dawlish who are on a virtual tour of London. So far they've been to Cyberia, Fuse 94, Easynet and surfed the globe !
The Virtual Nightclub is here!
Cybercafes around the world.
The Internet Now: is Cyberia's own audio magazine of the 'net
Art Galleries: Here you can visit some of the the on-line galleries.
Museums: Visit the Expo '94 office tour of the best on-line museums.
The Cinema: Access the Cardiff Movie Database to find out about films old and new.

Easynet is a part-owner of Cyberia, which it's hoped will be the first of many such establishments

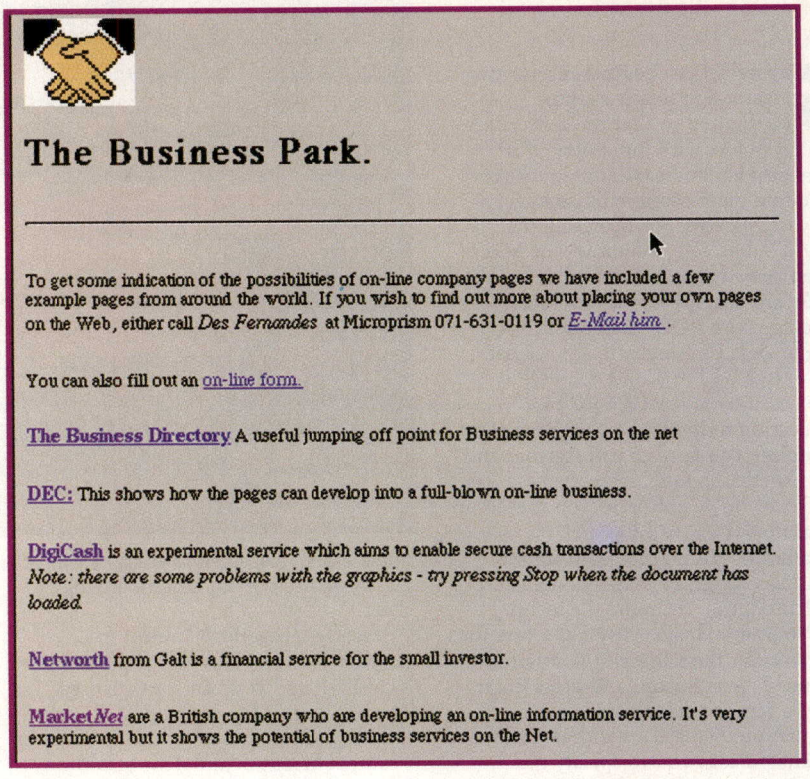
Easynet goes out of its way to ensure that installation procedure for Internet connection is, well, easy

4 Travelling around the Web

In addition to providing easy-to-use Internet access for Windows and Mac users, Easynet also has its own Web site at `http://www.easynet.co.uk/`, providing an attractive jumping-off point for surfers.

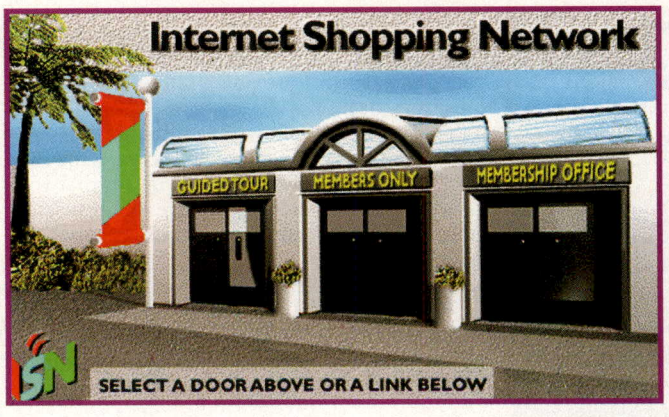
Easynet has kept its graphics to below 2K so access is fast, with main options being tourist information for those new to the Web or seeking information on Easynet; shopping, for a look at some of the more interesting Internet shopping possibilities; business park, where you can check out commercial possibilities; and Cyberia, which leads to the Cybercafé's own pages.

Easynet also provides the tools for publishing on the net with Power to the People (PTP), aimed at providing Web space and maintenance, Internet connectivity, plus training and an editor to create your own pages.


The Business Park.
To get some indication of the possibilities of on-line company pages we have included a few example pages from around the world. If you wish to find out more about placing your own pages on the Web, either call Des Fernandes at Microprism 071-631-0119 or E-Mail him .
You can also fill out an on-line form.
The Business Directory A useful jumping off point for Business services on the net
DEC: This shows how the pages can develop into a full-blown on-line business.
DigiCash is an experimental service which aims to enable secure cash transactions over the Internet.
Note: there are some problems with the graphics - try pressing Stop when the document has loaded.
Networth from Galt is a financial service for the small investor.
MarketNet are a British company who are developing an on-line information service. It's very experimental but it shows the potential of business services on the Net.

It's early days for commercial applications on the Net, but the Business Park points the way to what is possible

5 What the future holds



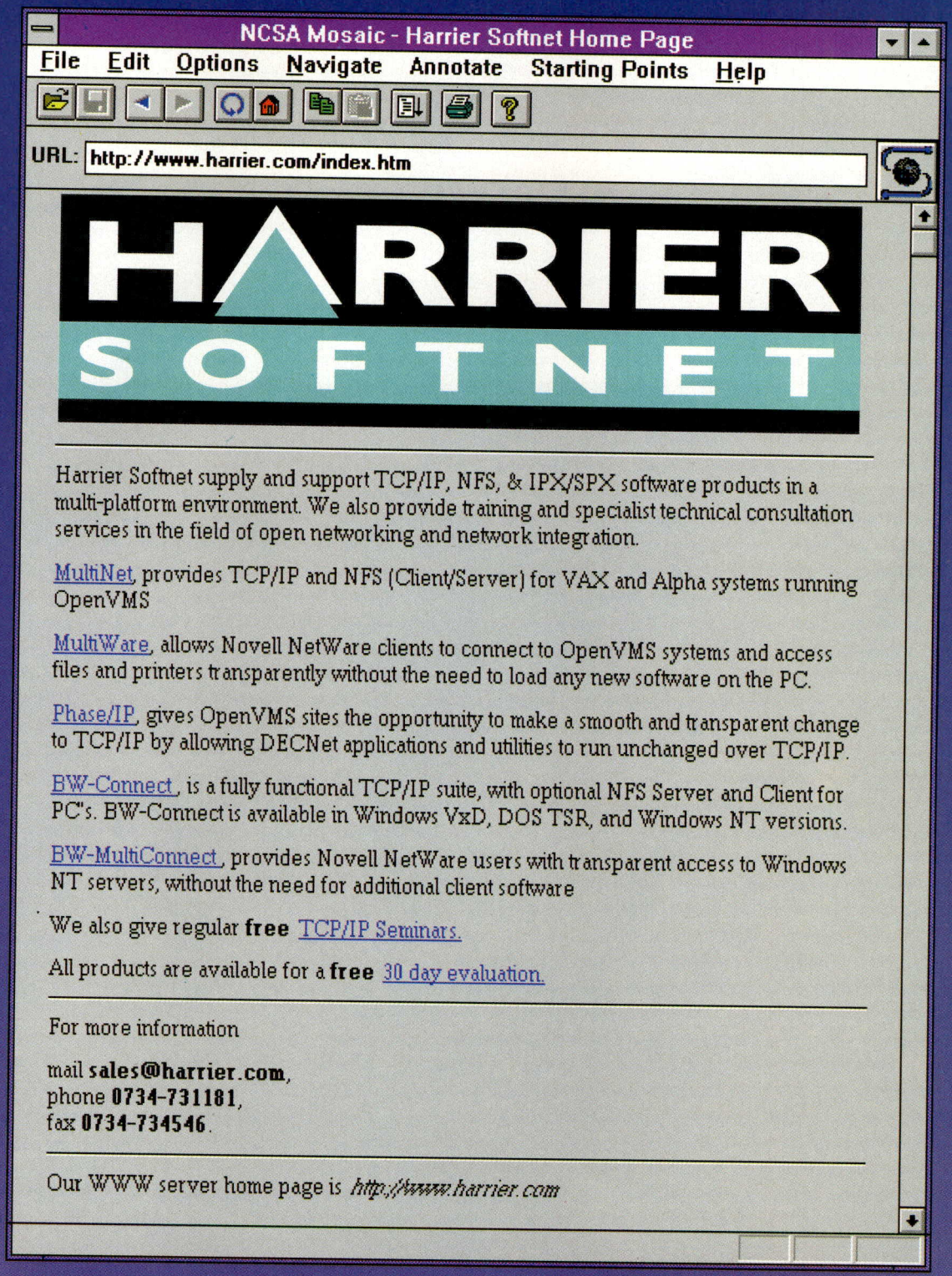
Internet Shopping Network – a gateway to shopping opportunities galore, so just walk on in

So, with Easynet and Cyberia, the message is to push forward the possibilities using interactive media like the Web so that more and more people start to participate on the Internet and take ownership of the technology.

Easynet has a vision that extends beyond the Internet as it is today. It expects that the next 12 months will see an enormous increase in the number of UK users and sites.

It is hoped that the success of Cyberia will result in more Cyberias across the UK, and there will be many more exciting developments to report over the coming months.

As the Internet develops from infancy into adulthood, Easynet will evolve into a major force in the communications revolution. The aim is for quality service with substantial content, giving the widest access at realistic rates.


NCSA Mosaic - Harrier Softnet Home Page
File Edit Options Navigate Annotate Starting Points Help
URL: http://www.harrier.com/index.htm
HARRIER
SOFTNET
Harrier Softnet supply and support TCP/IP, NFS, & IPX/SPX software products in a multi-platform environment. We also provide training and specialist technical consultation services in the field of open networking and network integration.
MultiNet, provides TCP/IP and NFS (Client/Server) for VAX and Alpha systems running OpenVMS
MultiWare, allows Novell NetWare clients to connect to OpenVMS systems and access files and printers transparently without the need to load any new software on the PC.
Phase/IP, gives OpenVMS sites the opportunity to make a smooth and transparent change to TCP/IP by allowing DECNet applications and utilities to run unchanged over TCP/IP.
BW-Connect, is a fully functional TCP/IP suite, with optional NFS Server and Client for PC's. BW-Connect is available in Windows VxD, DOS TSR, and Windows NT versions.
BW-MultiConnect, provides Novell NetWare users with transparent access to Windows NT servers, without the need for additional client software
We also give regular free TCP/IP Seminars.
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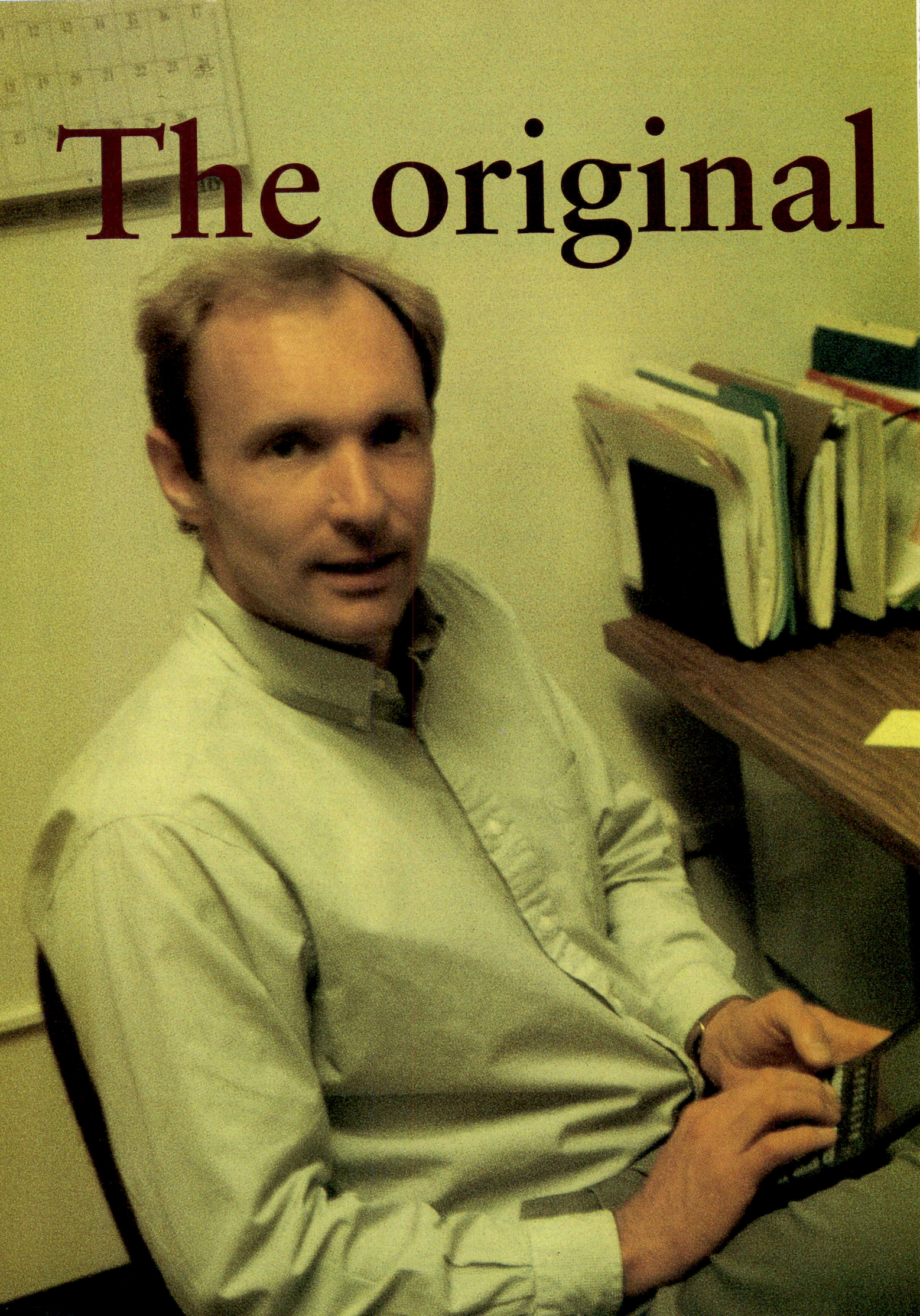

The original

Webmeister

The Web is the friendly face of the Internet but Tim Berners-Lee, its British inventor, believes accessing information from around the globe should be even easier. **David Fox** *spoke to him at his new base in Boston*

Thanks to programs like Mosaic, the World Wide Web has become the favourite mode of transport on the fabled information superhighway. In 1993 its usage increased by 350,000% and the simplicity of clicking on highlighted words, pictures or buttons makes it the ideal way for novices to locate data anywhere in the world.

However, although the Web is the most advanced method of browsing the Net, its creator, Tim Berners-Lee, believes that Internet access should be made still easier. He said, "There are all those people who have computers on their desk but haven't the faintest idea how to get an Internet connection. Now actually getting that Internet connectivity into computers is something which is going to take a little while, I guess, but I feel that perhaps in the next year it will be made very much easier."

The software is not ready yet, although all the pieces exist. According to Berners-Lee, what's needed is "a one-stop shop, just a single floppy". At the moment computers have to navigate lots of layers of software from different places, but, he said, "I know there are a number of projects to do that and they aren't very far away. When that happens we'll go from the academic community, who have workstations on their desks with an ethernet connection, to anybody who has a PC and a phone line, which is a big step.

His concern with access does not stop here, though. He said, "Of course, there is a very large number of people who don't have PCs, and those who advocate the Web because it will bring information to anybody who has a PC must be aware of the other side of the coin.

"While it means all those PC-equipped people will have access to all the information in the world, it also means anybody who doesn't have a PC, or is in a country where they can't get a telephone connection to somewhere that will provide them with an Internet connection, will be relatively more disadvantaged."

Berners-Lee began work on the Web in 1980 while employed as a consultant at CERN, the European particle physics lab in Switzerland. A complex hardware and software project was going wrong and, for his own benefit, he wrote a program to keep track of what was being used for what. "It was a little bit like a sort of note card except it was hypertext. I then ported that from one machine to another as I wandered around from company to company," he explained.

Flashing lights in hypertext

When he rejoined CERN in 1984, Berners-Lee found he wanted to share information with other people. The key to this is hypertext, which Berners-Lee compares to a book. "When you're reading the table of contents you run your finger down it and at a certain point think, 'Ah, that's the bit I'm interested in." However, on the Web the reference work is done by the computer. For example, click on an underlined word with a mouse and discover that behind it is the address of another document on the Net, which contains relevant information.

X Consortium marks the spot

Berners-Lee has just moved to MIT (Massachusetts Institute of Technology) in Boston, to use its experience of setting up the X Consortium, (which backs the X-Windows system), to establish the W3 Organisation (W3O). This will support the commercial development of the World Wide Web. CERN will still be involved, but as it is publicly funded to carry out high energy physics research, the Web is outside its remit, and its further involvement has to be independently backed.

The way the Web is used is changing rapidly

This is particularly important as the way the Web is being used is changing rapidly. At first people used it for fun, then the academic world demonstrated what was possible and now, as Berners-Lee remarked, "We find commercial people are showing what you can do with the Internet, with the World Wide Web, when you have a business."

Tim Berners-Lee, pictured in his office at the Computer Science Laboratory at MIT, Boston, was born in 1955 into a computing family. His parents had met while designing Britain's first commercial computer, the Ferranti Mark 1.

While he was an undergraduate at Oxford he was thrown off the nuclear physics lab's computer for using it for the rag week preparations. This provoked him into building his first computer out of an M6800 microprocessor, a fiver's worth of broken television and an old broken keyboard covered with Letraset.

His current Pentium PC runs NeXTstep, the friendly, Unix-based, operating system on which he created the World Wide Web in just two months. It took years for others to produce the same thing on other platforms. He uses it on every machine except his Psion Series 3A pocket computer, which has replaced his Filofax, briefcase and his previous 486 laptop.

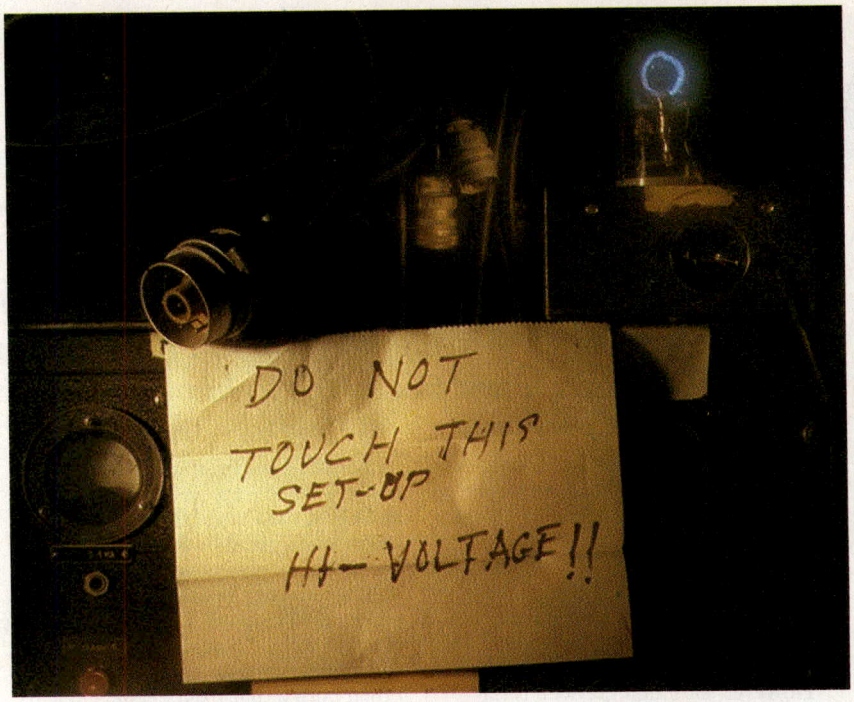
The Psion is more than just an organiser, as he is using it to write a book about the Web which, he says, will eventually be available, in hypertext, on the Internet. He'd love to be able to access the Web from the Psion but doesn't know of any suitable software and would be pleased to hear from anyone who does. His email address is `timbl@W3.org`

He cites virtual clothing stores where you tell the computer what size shirt you take and it shows you everything it has in your size. Then by clicking on an article of clothing you get an order form to fill in. You add your credit card number and it will be delivered.

However, Berners-Lee points out that financial transactions highlight the need for security on the Web. When you get the order form, you want to be able to check that it comes from a bona fide mail order company and not a hacker collecting credit card numbers. There's also the issue of integrity. You want to make sure that a message sent across the Web is not changed to misrepresent what you said. There is, however, work underway to make the Web more secure.

Although the W3O, of which Berners-Lee is director, will be co-ordinating the development of standards, it doesn't set them. Instead it will be making sure all the interested parties get together, bringing in top technical people to thrash out any possible problems.

"I don't see a need for the W3O to be a standards body in itself. We have very good links with the Internet Society and a lot of this work will be done with the Internet Engineering Task Force, which is responsible for checking and stamping the Internet standards."



As one of the first sites on the Net, predictably MIT has one of the most extensive file repositories

Working in collaboration

Initially it was the Web's potential for collaborative work which interested Berners-Lee and, he said, "That's one of the ways I'd like to take it."

He continued, "Instead of sending someone a message which reads 'Hey Joe, I found something really cool that you should look at. To get it you have to log on to this bulletin board and then type this, then type this, then type this...and, oh, you'd better type Help at that point because I've forgotten what you need to do then...' a user could just write 'Hey Joe, I thought this would be interesting to you' and the word THIS comes up in pink and the receiver just clicks on it.

"Underneath, all the links have been made by computer and so the reader can follow it." If all the sources of data are hypertext, they will all work together, which Berners-Lee sees as very exciting.

As you wander around the Web your browser software is always aware of each address, so if you find one you are interested in, you should be able to hit any hot key and instruct your software to remember where you are.

Berners-Lee describes addresses as "a horrible sequence of characters we don't have to concern ourselves with," and said, "I'd like to see all these addresses disappear so that nobody has to use them; so that making a link can be just as easy as following it – just a few clicks."

I'd like to see all these addresses disappear

Avoiding network overload

One of the biggest problems he envisages is the Web's enormous growth rate. Initially, the World Wide Web was regarded as scalable, in that when somebody read something they could do it independently of any central authority. Although that's still true, usage is so high that, in Berner-Lee's opinion protocols are needed to make things more efficient.

He said, "We've had some classic cases where a document has been read by a very large number of people," and he cites the scramble for pictures of Jupiter being hit by comet fragments and the way in which a network link to Oslo crashed under the strain of people trying to access the results from last winter's Olympics.

"We're working on protocols so that where there is a hot spot like that, where there is a piece of information of interest, it's replicated around the world so that people can end up picking it up from a local site rather than having to pick it up from the original site every time."

Power to the processor

He also wants to make the Web easier for computers to understand. "At the moment when you read the Web it's fascinating. You can go on reading it and following links for hours and hours. But when a computer looks at the Web it's flat because all the hypertext is designed for humans to read. All the computer sees if it tries to analyse the Web is a topology of lots of connected nodes, but it can't tell one node from the other."

Berners-Lee wants more information to be put in to tell the computer what the relationships are between people, organisations and subjects, so that it can analyse what is going on and keep track of what should link to what. This will make it possible for the computer to act as administrator or even auditor.

He hopes that this will mean computers can be used more powerfully and gives the following example: "When you buy an airplane ticket there will be a statement, in a form that a computer can understand, that this is a ticket which gives you a right to something and that it was bought for something. The computer can then manipulate that and make sure you are paying the right amount of money for it and can analyse what you are doing and can act on your behalf."

That will also make it easier to use software agents, without operators guiding their every move. At present, there are agents such as the WWW Worm, which wanders around picking up documents. Some worms look at the documents and pick up the vocabulary inside them to guess what they're about, but that's about all they can do. "If you're going to have agents acting on your behalf, obviously there has to be strict semantics underneath," he said.

In the short term, Berners-Lee believes we'll see a lot more commercial use of the Internet – both commercial services allowing access to the World Wide Web and other businesses selling anything and everything using the Web – and in the long term, he has high aspirations for his progeny. "I hope that the whole thing will become a meeting place for people and a sharing of cultures and not simply a Yellow Pages or a market place...I hope it will become very much more interactive and very rich." `<ends>`

David Fox is a freelance journalist. He also contributes to the Radio 5 computer programme *The Big Byte*.

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Price-sensitive issue

Are the best things in life free or do you get what you pay for?
Paul Smith *compares the Internet and CompuServe*

The explosion of interest in the Internet has caught everyone by surprise, but perhaps the people with most to worry about are those who have typically provided general internetworking services – the dial-up bulletin board services (BBSs). Anyone using or planning to use electronic services now needs to ask the question: CompuServe or the Internet?

CompuServe Information Services (CIS) is not only under attack from other services, but many people are coming to the datasphere and asking why they should pay CIS when they can get much of the same from the Internet for free, or for a lot less at any rate?

In reality, CIS is very different from the Internet, in terms of what it provides, how easy it is to access and use, and what it costs. When comparing the two, it is important to understand the distinction between a BBS and the Net.

What is a bulletin board?

A BBS is normally a paid-for service, privately owned, with a dial-in connection. Anyone can set up a BBS: it requires little more than a modem, a phone line and a computer. You then let people know the number of your BBS and wait. There are, in fact, thousands of BBSs, some very small. At the other end of the scale are the large BBSs – America Online and Prodigy in the States, CIX in the UK and, of course, CIS.

Most BBSs are organised in much the same way. They all offer a combination of features. Forums are sections devoted to particular issues or subjects and there are also separate and well-defined areas for uploading and downloading files.

All the major systems support email, not just to other members of that BBS but to the rest of the Internet. You can tell which BBS someone uses from their email domain name: `compuserve.com` for CIS; `aol.com` for America Online; `cix.compulink.co.uk` for CIX, etc.

But perhaps the most significant feature of these sites, the one that most clearly distinguishes them from the Internet, is that they are organised at all. Connecting your computer up to another computer is not an enjoyable experience for anyone, and the Internet was not designed for the average computer user. However, once you're connected, the Internet is, today, free.

What is CIS?

The biggest BBS is CompuServe. With over six million subscribers (that's even more than this magazine), CIS is also the most important BBS. Based in Columbus, Ohio, there are now nodes in most of the major cities around the world. It offers a huge number of forums covering everything from shopping, computer support, fax and email, through to newswire services and online travel guides. It also has an extensive selection of files to download.

CompuServe Internet access is currently restricted – you couldn't explore this interactive map of a virtual disco

CompuServe is as large and important as it is because it was one of the first services to successfully market its product to non-geeks. As a result, there's an enormous amount of support for CIS from computer vendors.

Another reason for CIS's continuing success is its front-end software. The CompuServe Information Manager (CIM) comes in a number of versions: DOSCIM, WinCIM and MacCIM, depending on your operating system. Although not perfect – I personally wouldn't want to try DOSCIM and WinCIM has some annoying eccentricities – it fulfils the most important feature of comms (indeed, all) software: it works.

CompuServe supports hundreds of forums. Each one is divided into sections that focus discussions more narrowly and each section usually contains a library, holding files relevant to that topic.

So the Windows Vendors forum, for example, has sections for each individual vendor which participates in that forum. Here people can post technical queries relating to their products and the vendors themselves monitor the sections and reply to the questions.

CompuServe is big because it marketed its products and services to novice computer users

However, one of CIS's most important features is its non-forum sections. CIS is moving forward as a player in global information by acting as a gateway to value-added services and databases. Good examples of this include

the OAG (Online Airlines Guide), which allows you to find and book airline tickets for any destination around the world, and the Computer Database, which lists computer publications that offer full searching facilities. There are also extensive, up-to-the-minute news, stocks and share and weather data, encyclopedia and movie reviews.

And, of course, there's email, still one of the most important facilities available, whether directly as a CompuServe member or by using CompuServe as a gateway for your corporate email system.

There are, however, three significant things that CIS doesn't offer: decent Internet access, high-speed connections and freedom from online charges (or, as we shall see, the perception of freedom).

What doesn't CompuServe offer?

High speed access is a bit of a bugbear. I find it inexcusable that London finally gets a 14,400bps connection years after its adoption and only a couple of months before 28,800bps is finalised as a standard, and that CIS feels able to boast of a 9,600bps connection for major city nodes – 28,800bps is not even close. "Most of our customers still use 2,400bps modems," is the CIS response.

And commercial it very definitely is. CI$, as wags often have it, charges, in US dollars per minute and this can add up. How much you actually pay depends on which service you are using. After paying the set-up fee of $39.95 (which includes the software and $25.00 usage credit), you pay $8.95 for each subsequent month. This only allows you access to the 'basic' service, which more or less tickles your appetite to try the forums and more interesting features. This is also where the charges become more complex.

The 'extended' services cost $4.80 (1200/2400 baud) and $9.60 (9600 baud) per hour, plus a further communications surcharge depending on the network, country and operating time used. The peak period surcharge in the UK is $7.00 per hour. The 'premium' services attract yet another surcharge.

For the basic charge you can send approximately 60 three-page email messages per month. After that you are charged at 15 cents per 7,500 characters.

It is worth calling Compuserve to clarify these charges and to work out what you will actually pay in sterling.

Internet access is on the turn. CIS started access to Internet Usenet groups in August. It also allows in-bound Internet access, via Telnet, for those places with local Internet access but no CompuServe node locally. FTP and Telnet services are promised, to be followed by Gopher and WWW.

Perhaps more significantly, CIS has also announced that it is joining the Commercial Internet eXchange (CIX, unrelated to the UK BBS) and that it will soon be selling dial-up and dedicated services up to T-1 (1.5Mbps) speeds.

What is the Internet?

Few readers need to be told what the Internet actually is, so let's look at it in terms of the services that CIS provides. Certainly, the Net is much, much larger, but that size is not necessarily a meaningful measure of anything other than, well, size.

The fundamental difference between CIS and the Net is that the Net isn't owned by anyone

A large proportion of the Internet, will be of interest only to those already on it: academia and its relations. For the professional Internet user, most of the information will be irrelevant and there are thousands of sites and users that you are unlikely to find valuable.

This is certainly changing as the Net becomes more commercial and of course there are aspects of the Net that are universally relevant.

Using the Net for email

The first of these is email. One very distinct disadvantage of CIS, a legacy from its early decision to develop proprietary systems in-house, is the strange naming convention that condemns members to bizarre email names such as `100112.1722@compuserve.com` (that's me).

On the Net, you have much more freedom to choose your name and domain: `pauls@computing.emap.co.uk` at least suggests that my name is Paul (as, indeed, it is) and I work in the computing department of Emap, a UK company.

Another part of the Net that many consider central is Usenet. Here people talk on many (and, let me assure you, diverse) topics in the same way that they do on forums in CIS.

And then there are the sites that allow you access for transferring files or interactive facilities such as Telnet. There are many more of these than on CompuServe and, most vital in today's booming Net, is the WWW, especially Mosaic and other graphical browsers.

The difference is that there is no easy way of finding where these sites and facilities reside, nor a central point from which to learn how they work. This represents the core difference between the Net and CIS: the Net is not owned, run or controlled by anyone or anything.

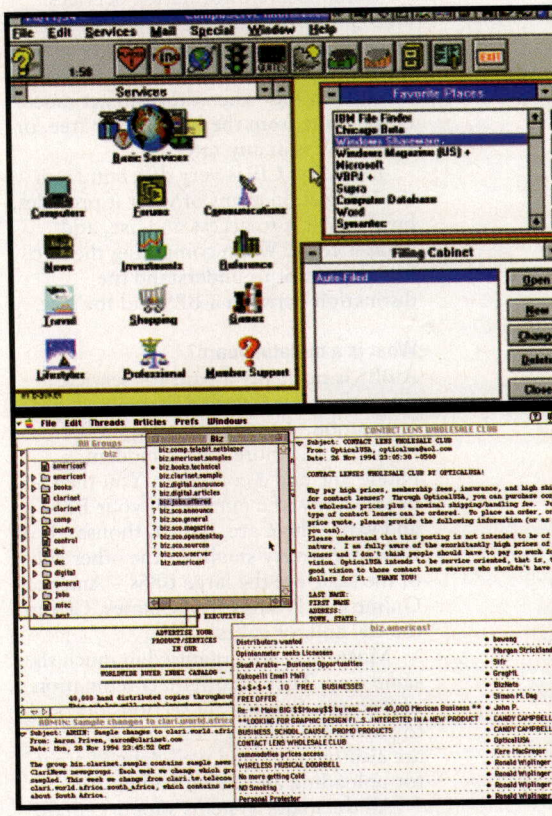
CIS, on the other hand, doesn't support all the Usenet newsgroups and you will need a different sort of access and some of them are hidden to prevent accidental access.

Calculating value for money

Although it will change when people figure out how to do it, the Internet is, at present, free, or at least it is perceived as being free. In fact, you do pay, whether it's through your company's leased line, a service provider or university fees.

Anyone comparing the systems needs to do careful cost/benefit analyses based on expected usage. The point is that there are hidden costs in both Internet connection and in how much CIS time you use and of what type. Some CIS services cost a great deal, including Usenet and email, while some are free.

These are two very different systems and the reasons for using one over the other are very different. If you are an organisation primarily interested in significant connectivity, you should probably connect to the Internet. This would generally include anyone wanting to use the World Wide Web, as the Mosaic interface is very difficult to emulate in a BBS set-up.



CompuServe Information Manager (top) gives users access to a wide range of forums, but there are literally thousands of newsgroups on the Net (bottom)

If you are interested in a series of value-added data services at a price, with email connectivity thrown in, CompuServe is the way to go. Bear in mind though, although it is advertised to the contrary, Compuserve is not an Internet access provider – it does not support direct IP connectivity.

Of course, this is a constantly changing situation. As CIS becomes more Net-savvy, and the Net more commercially sensitive, their individual attributes will overlap more and more. There are, as ever, interesting times ahead in the datasphere.

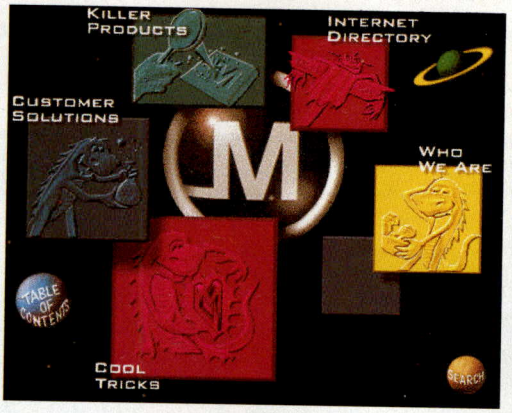
CompuServe can be contacted on tel 0800 289378 or email `70006.101@compuserve.com` <end>

Paul Smith is assistant editor of *What Personal Computer*, as well as a regular contributor to *PC User*.

So here you go, pop-pickers, INTERNET Editor Neil Ellul runs through his all-time top ten Web sites

It doesn't take much trawling around the Net before you discover which are the well designed, well thought-out sites, and which have just been thrown together in order to give organisations a presence. Here is my choice. Of course it's personal, but if you agree with me – great! If you don't, email your own top ten and it might just get published. All these places are reviewed in the INTERNET What's On section. So here follows the best of the best, the cream of the crop, the notable of the Net – at least IMHO :-)

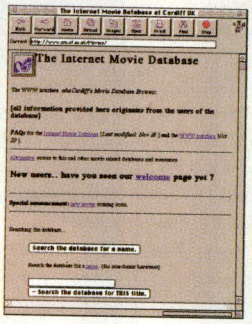
1 Megadeth, Arizona `http://bazaar.com`
This one has everything. Even if you don't like the heavy rock band Megadeth, what makes this No. 1 is the design. Right from the opening page, which has a screen-sizing process, through the exquisite iconography, to the cleverly concealed merchandising section, this Web site has definitely been designed with the Net meanderer in mind.



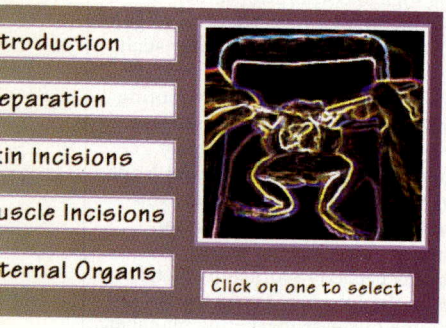
2 Le Louvre `http://mistral.enst.fr/~pioch/louvre/`
One of the oldest but still one of the best. Despite some rather large in-line graphics, this site is constantly used for demonstrating the more luxurious side of the Internet.

3 Netscape `http://www.netscape.com` This is the home page hard-coded into every copy of Netscape, so it should get a wide audience from day one. The graphic design here is outstanding, with humourous, yet functional page headings. One particularly noteworthy item is the three-dimensional contents page graphic, which is a good demonstration of what you can do with mapping.

4 Missing Kids Database `http://www.gems.com/kids/ncmec.html`
In my view, this is the first database to marry functionality with good design. This server makes those databases with graphics, which appear in spy films, a reality. It is also motivated by a genuine concern which benefits from international exposure.


The Internet Movie Database
New users.. have you seen our welcome page yet ?
Search the database for a name.
Search the database for this title.

5 Cardiff Movie Browser `http://www.cm.cf.ac.uk/Movies` Despite a severe lack of design input, this server is cited as a personal favourite by a large proportion of users. Like Le Louvre, it appears on masses of home pages, which has to be an indication of its popularity.



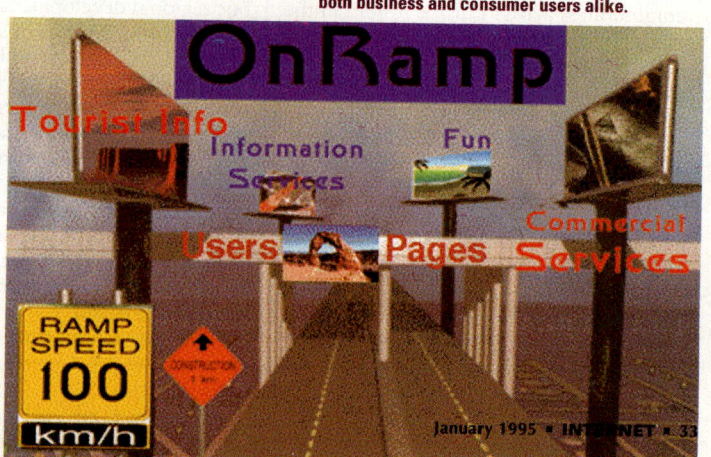
6 Interactive Frog `http://curry.edschool.virginia.edu/~insttech/frog`
This server has been designed with one goal in mind – to teach users how to dissect a frog. It might not be to your taste, but it performs this task admirably, with a good mixture of text, graphics, sound and video.

7 Metaverse `http://www.metaverse.com/index.html`
If developed properly, this will be one of the most popular consumer sites on the Internet. People appreciate the analogy of an online music magazine, replete with music. This is the virtual equivalent of a cover-mounted CD, but much cheaper to produce!

10 Commercenet `http://www.commerce.net`
Not the sexiest server, but one that is already making money and offering what the business community needs – organisation and standardisation within the structure of a free form, provocative network.

9 Onramp `http://www.ramp.com`
This gets a mention not just because it is the home of Brandies Babes (the Virtual Brothel), but because it has a wide range of varied content. This is definitely a site to watch, as it is one of the few with true value for both business and consumer users alike.

8 IBM `http://www.ibm.net`
An example of what can be done when you combine products, in this case a good operating system (OS/2), with access provision and a well-designed home page. The graphics walk a fine line between good-looking and non-downloadable, as the time taken is just bearable, given the quality of the images.



Business takes the RITE approach to closer European union

Local businesses are the target for a new network which aims to stimulate commercial Internet activity in some of the more remote corners of the European continent. **Philip Hunter** *reports*

Technology can promote, rather than threaten, traditional local businesses in rural areas

The partially EU-funded RITE (Regional Infrastructure for Telematics Europe) project is due to start its pilot phase early in 1995. It intends to encourage even isolated rural communities across Europe to join in the global business information sharing network, RegionLink. Access will be through the Internet. Casual browsers will be able to retrieve limited information through the World Wide Web, but professional users will want to subscribe and use the full service. It will eventually be possible to advertise, buy, sell and barter in a real time international virtual marketplace.

Initial feedback from the four regions participating in the pilot has been enthusiastic, according to David Brain, managing director of Systems Synthesis Ltd (SSL), the Bristol-based company coordinating the project. Admittedly few of the potential end-users are yet aware of the work being done on their behalf, but regional development councils will be promoting a range of services, some of which are already in place.

These include online electronic product directories, information retrieval, transaction processing, electronic mail, EDI (electronic data interchange) and support for virtual corporations. The objectives are to tailor these services to the needs of each region, while exploiting the Internet to help local businesses reach new markets around the world.

One way the Internet can help small companies is by making it easier for them to club together in virtual corporations to negotiate better deals from suppliers or providers of services. This is already being explored with one of the participating regions, Grampian in Scotland. "We're looking at a system there which links the trucking companies with the food producers, so you can have online booking of loads," said Brain. This would enable small businesses to negotiate better prices by acting collectively. "That's one example of how transaction processing works," he adds.

Online transaction processing (OLTP) is one of the services being offered by RITE because, explained Sybase's UK product manager for servers and connectivity, Richard Kellett, "By creating logical corporations, it's possible for smaller organisations to gain the value of significant technology such as transaction processing." Other services where vendors are contributing are intelligent text retrieval, based on Verity's Topic document searching software and electronic mail, from Isode.

Sun Microsystems is supplying the servers and it has developed special software to automate the set-up procedures needed to attach its Netra servers to the Internet. The company's UK volume business marketing manager, Rob Bamforth, reckons that anyone with rudimentary lan administration skills could set up a machine and have it running on the Internet in half an hour. This approach is vital if the service is to appeal in places where there is a lack of networking expertise.

The other key ingredient is the user interface. "At the client end you just need a WWW client program, probably Mosaic, and possibly Adobe Acrobat, which is also free, so you can download compressed files, for example product brochures," explained Brain.

The idea for the RITE initiative germinated in 1991 in a project called SABRE (Support the Applications of Business in a Rural Environment). The remit was to study how a server-based network could help stimulate business

outside urban areas. "We looked at all kinds of user requirements and found there are two key components," said Brain. "There's a component that varies from region to region in relation to what industries happen to be present there; and there's a number of general things that are very similar in all regions."

Then, as the Internet became a viable business network, the RITE project kicked off in early 1994, partially funded by the EU under the Telework Stimulation Action Programme.

Initial work was done on one server machine at SSL's Bristol office and then moved to a larger production server in late 1994. Brain calls this a virtual server because it will serve each region as if it were local to it. "We're having one virtual server as an interim stage, connected here via Internet access to all the different regions," he explained.

At the time of writing SSL was going through the usual agonies of deciding which Internet access provider to plump for, but reliability was high up on the tick list, given that the service is pitched primarily at users who are unlikely to be impressed by a network that keeps falling over.

The eventual aim is for each region to have its own local server connected to agents and businesses via links set up in a variety of ways. In Galicia, north west Spain, the network is distributed to a variety of local centres, each run by appointed agents who will market the services to businesses in their area.

"We want to connect these centres and the local development agents in those centres to a centre in Santiago (the region's major city) to provide services in that area," said Andres Rodriguez-Pose, research director at the society for local development in Galicia. The Internet then comes in to connect the centre in Santiago with other regions in Europe within the RITE programme, and then out to the rest of the world.

The Spanish project has several clear, overlapping objectives for the project, beginning with establishing the basic local network for agents within the region to make the service available to businesses, and then extending via the Internet to other regions and beyond. Rodriguez-Pose sees it as an opportunity not just to reach new markets but also to give Galician businesses access to products and services which are either not available locally or which are cheaper elsewhere.

He alludes to teleworking but does not mean it in the sense of farming out clerical tasks. Brain, too, is very keen to emphasise that RITE is not about outsourcing relatively menial office tasks to remote locations where wage rates are lower, because this will lead to a price war with the third world which Europe cannot win. "You can just as easily outsource clerical work to India as Wiltshire," he noted.

Instead he advocates using the Internet to market a region's unique products or services, which could be tourism or a particular craft. These are precisely what Galicia has to offer, so Rodriguez-Pose could not agree more. "Imagine a firm in Holland needs a special craftsmanship in wood," he enthused. "They can see what's being offered in some of our districts and can trade or buy over the Internet."

Given the security ramifications, the ability for small businesses to complete financial transactions over the Internet is some way off, but the problem is in hand. "First, we're looking at encrypted email for those kind of solutions and, ultimately, digital signatures, based on the X.509 standard, which allows you to verify the identity of a person you are communicating with," said Brain.

One interesting aspect of the project is that existing services can be combined to create powerful applications specific to particular industry sectors. SSL has already developed one example of this for small Dutch companies in the oil business (northern Holland being one of the four pilot regions).

"One problem these companies have is to know what contracts have been placed by large oil companies," said Brain. At the moment a company there will fax out every contract that comes out of every oil company to a list of subscribers. The problem is that, typically, only about 10% of the contracts are relevant to a particular small business selling products or services to large oil companies.

SSL's solution involves combining email with the Verity Topic text retrieval system to enable small businesses to establish profiles of the kind of information they need, and then have these delivered over the Internet. Each contract is automatically searched by Topic, which selects the ones relevant to each business. The email system then takes over to dispatch them to the mail box of the relevant small businesses.

In the short term, other integrated applications of this type will be developed. In the slightly longer term, when a related EU project called Briteur, within the RACE high-speed networking programme, reaches fruition, the ability to integrate voice and video will be added. "We're working with a cable TV company in Ireland and setting up an ATM network, and we'll be providing similar services [to those being developed within RITE], but with video stuff in addition," Brain confirmed.

But this is jumping the gun a bit as far as most potential beneficiaries of the RITE project are concerned. Many will first need to be convinced that the Internet can deliver as it is now.

Contact David Brain on (0272) 238 853 or at David@Ssyth.demon.co.uk

Internet access terminals are all booked out at Marylebone Library

Start-up company Input/Output Centres plans to open Internet access centres all over the country

Input/Output Centres is a new company which is installing Internet access computer centres at public libraries. The first has opened at London's Marylebone Library and another eight locations are planned for 1995.

The company is the creation of David Green and James Golfar who developed the concept as a joint venture with Westminster Council.

"We hope that every major library in the UK will have one of these centres by

the year 2000," said David Green.

Now would-be cybernauts can come in and cruise the Internet or send email to anywhere in the world. They can also open their own email Internet address. For the more adventurous, it is possible to download software programs, pictures and go shopping at virtual shopping malls.

The centre offers a wide selection of the latest PCs and Apple Macs for hire (charges start at £5 per hour). These are all loaded with software allowing the user to do anything from simple CVs and letters to advanced design work and DTP. The machines are connected to laser printers, scanners and CD-ROM drives.

Input/Output Centres provides computer training using the latest interactive systems from America. These have proved so effective that the company offers a unique money-back guarantee if users are not completely satisfied with what they learn.

It also runs training for children at its Compukids sessions on Saturday mornings. Claimed as another UK first, this allows kids from the age of four years upwards to get involved with computers in an entertaining yet educational way.

Marylebone Library is in Marylebone Road, London NW1, tel 071 486 3161, fax 071 486 4151. It is open 9.30am to 7pm weekdays and 10am to 5pm Saturdays. You can reach Input/Output Centres on tel 071 486 3161 or email at **iocentre@easynet.co.uk**

home users

New disability BBS

The British Computer Society's Disability Group has launched a bulletin board with Internet access on an extended six-month trial. This follows an experiment which ran last summer, and it is hoped to generate interest from possible sponsors. This would enable the service to become fully operational on a national level.

The disAbility bulletin board service (BBS) has been established to enable people around the country to communicate nationally and internationally via electronic mail, as well as to have access to information specifically of interest to disabled people, and for those who want advice on gardening, knitting or even space travel, it has that as well.

As well as the Internet, the service links to Fidonet, the largest world-wide hobby network, and Chatnet, the email system which allows disabled people to exchange views and information.

"Bulletin boards can be a lifeline to the outside world for those whose disabilities confine them to their homes for long periods, and we're delighted to be able to offer this service to our members and other organisations involved in helping disabled people," said Geoff Busby, chairman of the BCS Disability Group.

case studies: computing

Email integrator's business is booming as companies call up colleagues via the Net

Over 90% of C2C's customers use Lotus CC:Mail or Microsoft Mail to send electronic mail round the world

The most common question asked by Joseph Cheney's clients is: "Can you give me an Internet gateway for my mail system?" Cheney is technical manager of C2C Systems, a specialist email supplier and integrator based in Caversham. And, he adds, "With the trend towards downsizing corporate computer systems, the PC lan has seen tremendous growth over the last two years. Mainframes and minis are being replaced by file servers and workstations, giving individuals more scope to complete their work in original and imaginative ways."

Smart businesses now rely on quick information and file sharing to handle their daily workloads, but as technological confidence and prowess rise, so do users' expectations, and they become aware that they need to be able to communicate with external networks.

The first symptom of this is the increasingly common email address appearing invitingly in correspondence, and it seems inevitable that email will enjoy the same meteoric acceptance as the facsimile machine, particularly for firms doing international business.

C2C Systems has been helping telecommunications providers, financial institutions and electricity suppliers in the design, roll-out, training and management of their corporate email and lan systems.

To link a customer to the Internet, C2C installs one of its gateways (a means of transferring data between dissimilar systems). These feature automatic uuencoding/uudecoding of attachments, which means an employee can send a message to a colleague anywhere in the world, attach an Excel spreadsheet and an Amipro document outlining a new sales strategy, and know that it will be received as a workable file.

C2C Systems can be contacted on tel 01734 464411, fax 01734 462885 or email sales@c2c.exnet.co.uk

case studies: education

Scheme to connect schools to the WWW

Project Connect is a partnership between commerce and education, which aims to bring the benefits of wide area networking and Internet access direct to classrooms and lecture theatres.

The companies involved have donated over £400,000 worth of hardware, software and training in order to operate a full appraisal of the benefits access to the world's largest network can bring.

The introduction of full Internet links will provide schools in Britain with easy access to an enormous array of various types of information – documents, sounds, images, library catalogues and other directories, weather, geographic and scientific information, educational programmes, electronic books and email.

TOSCA (Trusted Open Systems Connectivity Alliance) is an association of major UK computing companies. Formed five years ago, it seeks to address the specific requirements of the public sector. Following discussions with representatives from the Internet Society, it was given the remit to operate this initiative in February 1993.

The unique nature of Project Connect is that it provides connectivity and

support for schools via their local FE or HE establishment. This will give them a local access point to JANET (Joint Academic Network) and thus a gateway onto the Internet – at a greatly reduced price. In addition, the schools will receive the added benefit of training and support from the university or college in their area.

From a commercial perspective, for the companies that are sponsoring the initiative, Project Connect provides a package tailored for schools' needs that is promoted and supported by the educational establishments which are in the process of signing up to become support centres.

In order to prove to schools the benefit of access to the Internet and, more importantly, the enhancement it will bring teaching and learning within the boundaries of the National Curriculum, TOSCA decided a full pilot appraisal was necessary.

Seven schools have been chosen to receive the fully networked systems. Three are in Leicestershire, where De Montfort University is the support centre; three are in Northamptonshire, where Tresham Institute is the support centre; and one, located in Hounslow, London, is for children with emotional disturbances.

Close cooperation between all the educational bodies involved – be they school or government department – is essential to the aims of the project,

Each school has, or is about to receive, a fully networked system consisting of: an ISDN2 line from BT and free call charges to connect the school to the support centre; ten to 15 PCs and a file server; Novell Netware 3.12; an ISDN card, ethernet cards and routers; a colour printer; and a complete suite of applications software. In addition, the support centres have been supplied with systems to manage the schools' traffic.

Following the pilot, which will run for 12 months from this January, TOSCA aims to promote the model of connectivity for a school via local colleges and universities nationwide, in conjunction with specific ways in which the services available over the Internet can be used in the classroom. This will also be supported by a starter pack which will help schools make the initial connection.

Steve Martin, the operations manager of TOSCA, said that, "Although many people pay lip-service to IT, they don't really understand what benefits will accrue from its use and especially from access to the Internet. This is probably because the development of IT is so fast, quite alarmingly so, and therefore, a major training programme is required."

Project Connect is currently looking for UK and European institutions to become support centres for local schools. If you wish to register your interest in playing a role in Project Connect, please contact Steve Martin at TOSCA on tel 0691 670543.

Open access policy

From 1996, all Open University (OU) students who want it will have direct connectivity to the Internet from their home computers. The OU standard computer specification for this will be a PC with Windows and a fast modem.

And in addition to this, at least one course next year, an MBA on international management, will be using the Internet for its studies. In particular students will be encouraged to use it for data gathering for assignments.

In this way, it is intended to show students the power of computer communications to help them in their working lives.

At the moment OU students have only limited access to the Internet. Unlike those at other institutions, it is not practicable to provide them with terminal or workstation rooms. There is no college campus on which to situate them and, in any case, that would hardly be convenient for adult students, most of whom hold down full-time, and often demanding, jobs.

Instead, the OU provides any student with a computer and modem access through dial-up at local call rates to its Vaxcluster at Milton Keynes. Through the Vax, which is on JANET and hence on the Internet, students are provided with access to CoSy, the Open University conferencing system, and some Net Internet resources. <end>

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@Letters...

The electronic postbag was bulging again this month, and thanks to everyone who got in touch. Keep the correspondence coming by sending email to the Editor at **neile@computing.emap.co.uk**

Congratulations! A magazine for people who know that there is more to the Internet than computer games! Having bought the first issues of both *.net* and *Internet & Comms Today*, I am glad to have discovered **INTERNET**, (lurking on the bottom shelf at WH Smith) which, though half the number of pages, provided me with much more than twice the information – and at half the cost.

As a musician/artist running my own record label, I was desperately seeking good, well presented in-depth information on the business implications of the net, knowing full well that this is where the future lies for small, specialised businesses such as mine. Your magazine does the job clearly, concisely and without flashy distracting graphics!

The technical articles were perfectly pitched and enabled me to get a grasp on what my next move might be. The Hotmetal review also explained all.

Only one suggestion: how about a free subscription for the best/most sycophantic letter of the month?! (I'd subscribe, but I am a starving artist after all!)

Simon Scardanelli, UK
eye@eyecam.demon.co.uk

I recently became very interested in the Internet due to all the media coverage and new mags. I was told many times how easy it was to get connected and all for the price of a local telephone call.

With this reassuring message I duly bought myself a modem for £200 and got a connection. I decided on WinNet because it was cheap and would serve as a good introduction. If I got hooked I could get a better connection.

After about three days and a lot of hassle I got settled down on the Internet. My first disappointment was that because I live in Cumbria, and there are no big cities near me, I couldn't get connected for the price of a local call, as promised. The nearest server is Manchester, but I would be charged a supplement to use it, so I was connected to London.

Apart from having to pay for long distance phone calls I also have a lot of line noise problems. BT says it's because of the distance and the weather!

Then I realised that my offline connection did very little else but email and Usenet, and that an interactive connection on which I could use a program like the much lauded Mosaic would cost me an arm and a leg.

So now, three weeks later, and £200 plus phone bill later, it's all gone a bit flat. Mosaic looks great but I can't afford it. MUD games look great but I can't afford them. Telnet looks great but I can't afford it. The list goes on.

It appears that the Internet, cyberspace netsurfing and the like, are for people who never see a phone bill or at least live close enough to a big city to keep the bills within reason. I don't know the percentages but surely loads of people live outside the range of the few POPs that the server companies provide.

Not once was I warned that rural communities would have to pay more. Perhaps it could be made clearer to people that the Internet can cost a lot of money for a home user.

Paul Mumberson, UK
mumby@wton.win-uk.net

The Editor replies: You don't say which service provider you are using but there is certainly no reason why it should be charging a premium for dialing into Manchester. You don't need to dial into London – there are companies which have nearer POPs. Most have them in Manchester and Demon has one in Warrington which, if my geography serves me correctly, could be nearer for you. For details see the Providers' List on pages 58 and 59.

I have what I think is a relatively simple question. My company registered as softcase.co.uk about two years ago and has used EUNet since that time. Recently though, I have been looking at the services/costs offered by EUNet and think it might be worth making a change.

The problem is, however, we would like to keep our existing Internet address softcase.co.uk but change our service provider. This is necessary because all our marketing material etc has this address on it. It does not appear, though, that I can change service providers without changing my Internet address to include a gateway prefix.

Surely I can simply arrange for the Internet backbone to re-route incoming mail to some other service provider like CIX transparently?

A second question concerns compatibility. Our Sun workstations are connected to EUNet via a modem and we use a UUCP dial-up line. If we wanted to change Internet service suppliers would there be a problem if they employ BBS or IP protocols?

Howard Ricketts, UK
CIS:100115,1215 or howard@softcase.co.uk

The Editor replies: You should not have any problem taking your domain address information with you when you change service provider, it is just a case of rerouting via your new provider. Whatever the company, it will sort it out for you.

What I would say, though, is that going from a UUCP account to a BBS service is a retrograde step. You should be looking at going towards a full IP feed, so that you can use all the associated applications and services, for example WWW, Gopher, IRC, Usenet etc.

To answer your second question, if you go to a BBS supplier you will have problems linking up your present equipment. If you stay with UUCP or go to IP, you can keep the equipment as is. Have you checked out EUNet's full IP prices?

Hi! I have issue 2 of **INTERNET** here. I very much enjoyed the What's On – some very interesting URLs. What I would like to know, though, is if your magazine has its own home page?

Cameron Marshall, The Queen's College, Oxford, UK
marshall@bioch.ox.ac.uk

The Editor replies: The answer is yes, but the general public can't access it yet because we want to make sure it's working properly and we can deliver a valuable service before we go live. We'll let you know when we do, though.

First, some constructive suggestions about the Providers' List (certainly a welcome feature in **INTERNET**).

1. Drop the email column and instead make a comment if any provider doesn't provide email; it is rather like a 'number of wheels' column in a car survey!
2. Combine the FTP and Telnet columns (again with comment if needed).
3. Maybe combine the WWW and IRC columns.
4. Don't use mysterious symbols; I can guess at the meaning of a tick, a cross and a question mark, but I wonder if you have to pay in diamonds for an ISDN service from RedNet, and if some parts of PC User Group's Connect service have died!
5. Add a 'cost per hour' column.
6. Add a 'minimum period' column.

Now, a service which I have used: Spud's Xanadu is a good way to get a full flavour of the Usenet and email for those wondering whether they are worth bothering with. Start-up and on-going costs are none (though donations are gratefully accepted) and it's the only UK email and news provider that is free!

Its email address is **sweh@spuddy.uucp** but if that doesn't work on your server, use **sweh%spuddy.uucp@britain.eu.net**. As you can see, I decided that the Net was for me!

John Gilliver, UK
G6JPG@soft255.demon.co.uk

Although your magazine is slimmer (and cheaper!) than its three rivals, I was quite impressed, because it has a more adult, less 'gee whiz' approach. I thought the What's On section was excellent, with some fascinating resources uncovered. Unlike other titles, your writers had clearly explored the sites listed in some depth.

John Hall, Cranleigh, Surrey, UK
John@jhall.demon.co.uk

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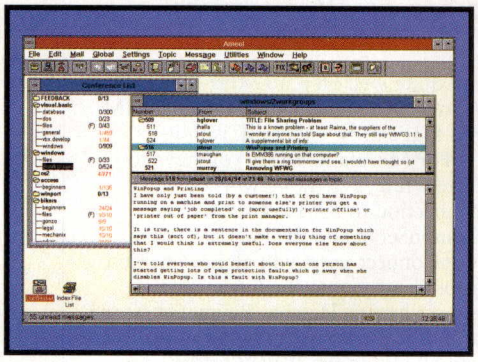

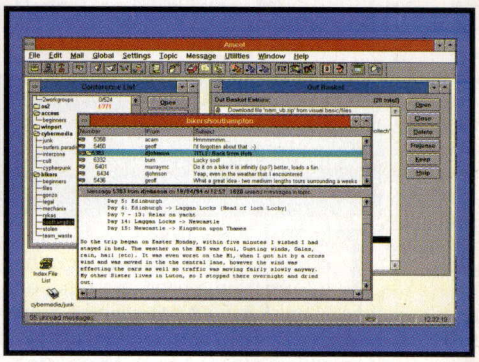

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Why should you pay for free software?

Paul Lavin explains why buying a copy of the shareware Web-browser, Mosaic, may still make sense, and looks at the range of alternatives

VARIOUS FLAVOURS OF MOSAIC
Spry: web_beta@spry.com
Netscape: litpak@mcom.com
O'Reilly & Assoc: nuts@ora.com

The Web is the brightest child of the Internet. It delivers hypertext-linked information a page at a time, but what pages! A Web page can be made up of text, graphics, animated images, audio or even live video. As you browse the contents of a page, a click on a highlighted word or icon requests another page – it could be the next in the current series or a related document from another Web server anywhere else in the world.

It's hard to get a tally of the number of Web cruisers now active. While the Internet is often credited with 20 to 30 million users, the sterner technical requirements of the Web mean that only a fraction of Internet users can access it. However, the servers that provide information for Web browsers are growing at a rapid rate – growth figures of over 30 per cent per month are often quoted, adding more than a 1000 per month to the over 5000 now working.

In the beginning...

The Web grew out of a project at Cern, a research lab in Geneva, where scientists wanted a way to share their data (see the profile of Tim Berners-Lee on page 26). The National Center for Supercomputer Applications (NCSA) in the US provided the first example of browser software with Mosaic.

However, NCSA, a government-funded educational organisation, has had its programming stars poached and has subsequently licensed the original Mosaic code to a small handful of companies. Development continues but the spotlight has shifted to the new browser companies.

Mosaic has been distributed free to millions of Internet users around the world, but the imminent commercial possibilities have spawned a competitive field of new products from start-up companies including NetScape, Air Mosaic, Enhanced Mosaic and others.

Besides the hypermedia documents, Mosaic makes it much easier to access other Internet search and retrieval tools like FTP (File Transfer Protocol), Archie, Gopher, WAIS (Wide Area Information Server) and Veronica.

A browser makes a pretty good general purpose tool for using the Internet, not just the WWW pages. However, although Mosaic can access newsgroups via NNTP (Network News Transfer Protocol), it makes an abysmal news reader. It's next to useless for electronic mail, too.

All in one

Until the ultimate browser is created, you will have to supplement your Net activities with purpose-built news and mail tools. You shouldn't have long to wait, though, because the big-time software companies will surely be supplying Web, email and news tools as part of their grand scheme (watch out for Microsoft's Information Exchange in Windows 95).

Mosaic for Unix boxes, PCs and Macs comes in many flavours. To have a reasonable chance of running one of the Windows Mosaic variants, you'll need at least a 386SX system with 4Mb of RAM running Windows 3.11, but that's really a configuration for dullards. It's much better to be running a 33MHz or faster 486SX with 8Mb RAM. Quarterdeck's QEMM memory manager is highly recommended.

Depending on the browser you settle on, you may need to update your Windows installation with win32s.dll and friends. This allows you to run a 32-bit version of Mosaic on your old 16-bit copy of Windows - all the better to wring a few percentage points of extra performance, at least in theory.

In practice, win32s.dll eats memory (but you do get a nifty card game heretofore restricted to NT users). The most current version is 1.15 and it is available free by FTP download from numerous sites. (The Enhanced Mosaic included with O'Reilly's book *The Mosaic Handbook* is bundled with win32s.dll.)

In my tests, all the Mosaic browsers ran quite well on a 66 MHz 486DX2 Apricot Xen LS II with 44Mb of RAM, but that's to be expected, isn't it!

For Mosaic to work, you have to have a full, TCP/IP networked connection to the Internet. Delphi, CompuServe and the PC User Group WinConnect users will all need to find another way onto the Internet. Subscribers to Demon, Pipex, CityScape and others who use networking software can all join in the WWW fun at once.

Many users employ Trumpet Winsock, a shareware program, for the vital network bits. Other leading commercial TCP/IP suppliers like Netmanage (Chameleon), FTP (PC/TCP and OnNet) and Frontier (Super TCP) can provide both the necessary software and support during difficult moments.

ISDN – attack of the killer app

Once you have everything humming, the main impediment to faster browsing is not the PC (or Mac or Unix) hardware platform but the speed of your Internet connection. The faster your link, the more natural will be your browsing – no one likes to wait, fingers drumming, for the computer to finish its ruminations.

Modern modem technology has delivered 14,400 bps modems at bargain prices but the new V.Fast (28,800 bps) units are still dear. Even they are really too slow for complex Web pages to snap into existence on your screen at anything like a browsable pace – for really good performance, you need ISDN.

ISDN has been touted as the next breakthrough in communications for so long that many people have stopped listening. ISDN delivers 64,000 bps speed and, importantly, call set-up times measured in fractions of a second.

The speed of transmission and the speed of connection are perfect for Web browsing – rather than stay connected to save the 30 seconds or so required for a modem re-connection, you can jump in and out, paying BT for just the time needed to grab the page.

Recent rate changes by BT, coupled with a reduction in the price of terminal adapters (ISDN 'modems') mean that more businesses and home office

workers are using ISDN. Call charges in almost all cases are now exactly the same as a voice (or modem) call. Since the same line wires can carry either ISDN's 64,000 or a modem's 14,400 bps, it is easy to calculate which is the best bargain.

The other prime browsing performance determinant is the site you are browsing and the time of day. It's sublime indeed to browse the Web Louvre in the early morning after downloading some classical music to accompany your perusal of the great masters. On the other hand, it's hell late in the afternoon when North America is beating a path to the doorstep of the Web Louvre's limited resources.

Free or what?

You can download a free copy of Mosaic from many bulletin board systems and online services. Mosaic is also available on the Internet at many FTP sites. There are versions for Windows, the Mac and X Window machines, so be sure that you get the right one for your kit. However, beware: many of the versions that are available 'free' are beta versions and entirely support-free, too.

Browser basics

A browser takes text which is document-formatted in HTML (Hyper Text Mark-up Language) and displays it as a colourful graphical document with the help of viewers. These viewers are usually shareware or come bundled with your copy of Mosaic.

All browsers take their directions from a line that allows you to type in the URL (Uniform Resource Locator) for your Internet target. WWW pages are prefaced with http://, FTP servers can be reached by ftp:// etc, but where browsers differentiate themselves is in the creation and maintenance of hotlists. These are pages you have visited before and found meritorious in some way.

You will also find that some browsers deal better than others with routine tasks such as email, printing and so on. There are even some incongruous problems reading certain pages with one browser but not another.

Browsers under Windows take their cues from a `.ini` file. This is a text file that sets various operations parameters such as the location of viewers. Some browsers expect you to be a dab hand at `.ini` editing, others have a menu-driven front-end for all but the most arcane configuration issues.

Spry Air Series 3.0

Spry's version of Mosaic is licensed directly from NCSA and has few surprises for anyone familiar with vanilla Mosaic, but it attempts to deliver the WWW-in-a-box as users need only an Internet connection to get started. The package also includes a groaning board of utilities into the bargain.

The slim installation guide takes you through the steps for loading a selection of the seven disks shipped in the top-end Air NFS package. However, installing

If security, reliability and customer support are of primary concern, you should look at buying your browser

them is a bit more technical than the other alternatives because Spry has taken trouble to work out all the tangled bits for several popular network packages, catering to Novell's Lan Workplace TCP/IP, Windows for Workgroups, MS Lan Manager, MS TCP/IP and PPP remote access users (dial-on-demand).

The last is made quite versatile with a 'Winsock switcher' that allows you to use a lan for local traffic but switch to PPP for Internet access. Configuration is taken care of with a set of clear dialogue boxes and there is lots of help available.

The massive user manual details Mosaic as well as a bag full of utilities including: an email interface; a very potent news reader; a gopher client; Network File Manager, which integrates FTP with Windows File Manager; Telnet and 3270 clients; NHS client; an X server; FTP server software; printer redirector; an image viewer; and UUCODE for uuencoding binaries for transmission.

The Mosaic implementation is first rate with pre-configured hotlist categories and Spry's NetAccess directory service, as well as unlimited room for user-created hotlists. For commercial users, Air Mosaic is capable of being run in kiosk mode so that public users can access selected Web resources. Usability is enhanced with configurable tool bars. Both 16- and 32-bit versions are provided.

This lot costs money but is very complete. The list price is $449 but smaller bundles are available, the meanest including Mosaic is $349.

Netscape

NetScape is the name of the browser and now the company (the company used to be called Mosaic Communications Corp but when the NCSA copyright lawyers came to call...).

Still in beta and known as Mozilla, NetScape is almost ready for prime time and its primary claim to fame is speed. The program makes full use of the

pseudo multi-tasking nature of Windows and the Macintosh, and allows you to get on with your browsing while largish images are still coming down the pipe.

It is available in both 16- and 32-bit versions and, in the tradition of beta software the world over, both crash abominably, but they are, to anyone's Web sensibilities, lightning fast.

NetScape is the product of Mark Andreeson, the same brain that created the original Mosaic, before he was poached by Jim Clark, a founder of Silicon Graphics, for his new company. It remains to be seen if Clark's $10 million bet will win against IBM's OS/2 WebExplorer, Microsoft's Information Exchange, the other small commercial browser companies and, indeed, the legions of freebie browsers like Cello, Tapestry and Pipeline.

Netscape is available as a shareware, one-month trial, demo application at `http://home.mcom.com`

O'Reilly/Spyglass Enhanced Mosaic

The copy of Enhanced Mosaic that accompanies O'Reilly and Associates' *The Mosaic Handbook* is a good deal for WWW beginners who already have an Internet connection and the necessary networking software onboard. It really is a Mosaic handbook, though, and users needing help with other bits and bobs of Internet implementia will find scarce comfort in its 200-odd well written and illustrated pages.

The software comes on a two-disk set which includes release 1 of Enhanced NCSA Mosaic and the crucial win32s.dll bits for this 32-bit implementation. Installation is the usual `a:\setup` fun. If all goes well you are treated to a local home page that is tied into the book for a fast start for novices.

People that buy the O'Reilly book-cum-software package are really off to an excellent start on the Web. Although the browser, enhanced though it may be, is still far from crash-proof, it is far better than the unenhanced versions available free via FTP.

As you might expect, you are ushered direct to O'Reilly's Web pages (at GNN) but these do an excellent job of pointing you off in a variety of directions (and perhaps, not accidentally, to a range of books that a certain publisher hopes to sell!).

You should not underestimate the value of the handbook as a guide and tutor for Web exploration. Because the hotlist is keyed to the text, the combined effect of the pair is hard to beat for someone who is trying to come to grips with the terrifying lack of organisation on the Internet. The package even gives you a gentle push in the direction of becoming a Web information provider with an excellent introduction to the art of HTML.

In common with other O'Reilly tomes, the index is priceless for instant access to the gems contained within. O'Reilly's book and the software are a mere $29.95, which is extremely good value for money if you already have your Internet connection and various other utilities sorted out.

lynx, cix & hayes isdn

LYNX, CIX & HAYES ISDN
cixadmin@cix.compulink.co.uk
Tel: 081 390 8446
Hayes: jrimmer@hayes.com
Tel: 0252 775500
Lynx: grobe@kuhub.cc.ukans.edu
ISDN 2 installation: £400
Hayes ISDN adapter: £799
CIX: £25 + £6.25 per month

As anybody attempting to view Web pages using an ordinary 9600 bps (V.32) modem soon discovers, a great deal of time is consumed waiting for graphics to appear on-screen. So why not skip straight to a service which is eight times faster? That's exactly what accessing the Net via ISDN can achieve. We tried a little surfing using Hayes' latest ISDN terminal adapter and CIX's Internet service. The results were impressive, providing you don't mind using the text-based Lynx Web browsing software.

ISDN access to the Internet is not a new development – it has been on offer from CIX for many years, for example. What is a novelty is the Hayes ISDN multiprotocol standalone terminal adapter, which is somewhat unusual in that it offers support for the V.120 terminal protocol which can reach 64Kbps without the need for any data compression. V.120 is popular in the USA but has yet to make much impact here in Europe.

The Hayes ISDN adapter also supports the V.110 standard, which is in widespread usage throughout the UK but has a top speed of only 38.4Kbps. CIX has offered ISDN access via Dataflex Design V.110 adapters for a couple of years but only acquired a pair of Hayes ISDN adapters in late October.

The really good news is that calls into CIX via ISDN cost no more than calls via an ordinary modem. This is in sharp contrast to BT's ISDN service via BTnet which costs £499 for the initial connection and £3,000 per annum to rent (see BT story, page 5).

The Hayes adapter is £799 which is roughly equivalent to a high speed modem. However, BT still charges £400 to install ISDN 2 into your home or office which is expensive compared to other countries.

There are, unfortunately, a couple of hidden obstacles for the budding Hayes ISDN user. In order to run a graphical Web browser such as NSCA Mosaic, you require a full IP connection. At present CIX only offers its users BBS-based (text only) access to the Net. However, thanks to Lynx, a public domain package written by Lou Montulli, it is possible to view WWW pages in text-only format. When a Web page contains an image, the software simply indicates that a graphics file has been omitted.

In fact this provides an extremely efficient means of finding your way around Web servers. The second obstacle is that CIX's Unix system is only capable of talking to the Hayes adapters at 57.6Kbps, hence the 64Kbps top speed cannot be achieved.

The only major criticism of the Hayes MultiProtocol adapter is that, unlike Dataflex's Desktop Diamond, there are no ports into which to plug conventional telephone equipment such as telephones, fax machines and modems.

Tony Dennis

master the internet video

One great thing about learning from a video, rather than a lecturer, is being able to stop and rewind when you realise you've been in a daydream for ten minutes and have totally lost the thread of the subject. Not that this video is easy to lose the thread of, but at times the Forest Gump tones of *Welcome to the Internet from Mystery to Mastery* author, Tom Badgett, tends to remind you of how late you were up last night.

That's not to say it's bad – far from it. In fact, in an hour and half he takes you from explaining what a modem is to showing you how to Telnet to another host and enable the backspace key. He unravels enough of the mysterys of email, Archie, Chat (IRC), FTP, Telnet, Gopher and the World Wide Web, to give even the most skittery technophobe the confidence to know it is not beyond them. "It's that simple," drawls Tom, "Remember you can't break it, just use it!"

Anyone whose impression of the Internet is based on glossy Mosaic screenshots is likely to become fidgety as

Tom logs into the World Wide Web using Lynx, a text based browser, and marvels the convenience of the hyperlinks. Still, next time Aunty Maud asks you, "What's all this business about the information by-way, dear?", you'll know what to buy her for Christmas.

Master the Internet costs £79 and is available from ADC Education Services, tel 081 4292410 or fax 081 4240415.

Angus Kennedy

FIRSTCLASS RETRIEVER FOR NEWTON
Price: P.O.A
Contact: Imago 0428 645225
Sysop.D@imago.com

The Apple Newton has been around for some time now, but has yet to revolutionise the PDA (Personal Digital Assistant) market as was promised at its launch. Indeed, the organiser industry has yet to find its feet in a market swamped by infinitely more powerful, fully fledged notebook computers. That said, if PDA sales were to rocket tomorrow, one of the most important applications would be communications.

The Newton is great as an electronic Filofax, but what would make it into a truly useful tool is the ability to use it as a repository for the information resources made available by the Internet. One product that takes a significant step towards this is FirstClass Retriever from Colorado-based company Black Labs.

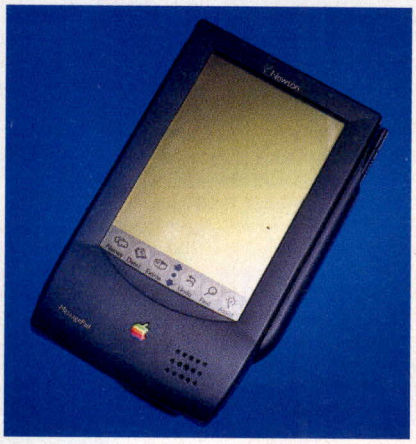
The FirstClass bulletin board system has been popular on the Mac for some time now. It allows all the usual BBS functions – email, file transfer and conferencing – within a very structured, Apple-style graphical user interface.

There are many FirstClass BBS providers around the country (one of which being Imago itself), and several now provide email access to the Internet. Some even include Usenet newsgroup feeds. Unfortunately, the windows and icons metaphor does not entirely translate to the Newton, but it does allow for email, and possibly Usenet to be performed from what is, after all, a very small and very portable machine.

FirstClass Retriever is based around the concept of three lists – current, saved and nusent. As you log on, the Current list shows the subject line and sender of all email waiting in your in-box. To read this mail you tap on the entry and the message is displayed. The saved list, as the name implies, is where all mail is stored or future reference.

The Unsent list holds all mail created while offline, and sends its contents the next time you are connected to the relevant BBS. The application itself can be used in two modes. Connect mode allows you to log on and browse the BBS system, downloading interesting items. The Xhange mode is a fully automatic operation that logs on, retrieves waiting mail and sends the messages prepared offline. Apple's present modem offering for the Newton is the external 2400bps Fax Modem, an ample speed for transferring email messages, but which is physically three quarters the size of the Newton itself – not exactly mobile computing!

What will make a big difference here, is the recent developments in PCMCIA modem and mobile telephony products coming from the likes of Vodaphone,



Xircom and Nokia. The Newton is equipped with a credit card slot and Apple has started demonstrating mobile comms from the PDA using the Nokia PCMCIA modem.

The user interface works reasonably well, given the limited graphics and size at the disposal of the Newton. However, the handwriting recognition data input will not suit the die-hard keyboard junkie, and should only be considered by the determined technophobe. With pricing now under £399, however, this package does present the Newton as a low-cost solution for connecting to the Internet while on the move.

Contact Black Labs on Blacklabs@applelink.apple.com and Apple Computer on 081 569 1199.

Neil Ellul

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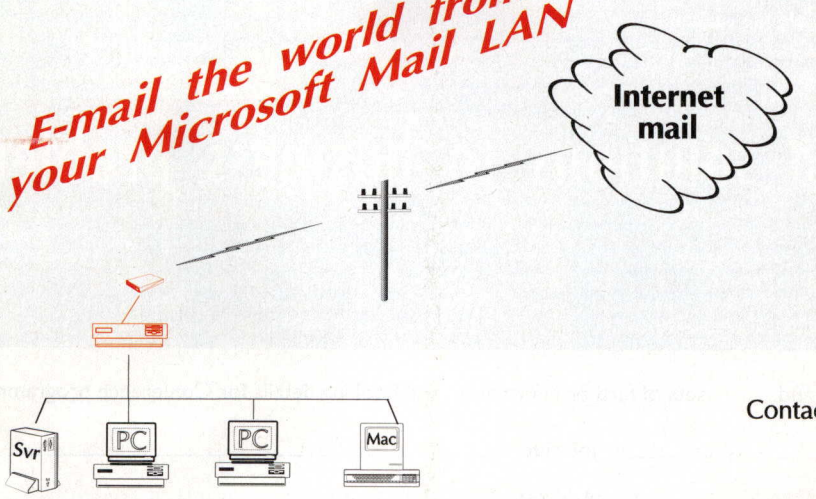

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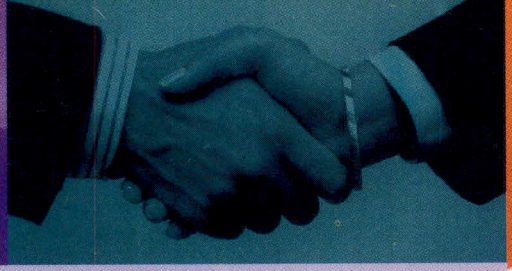
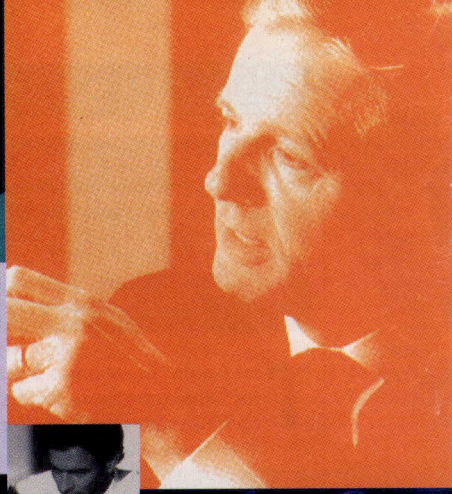

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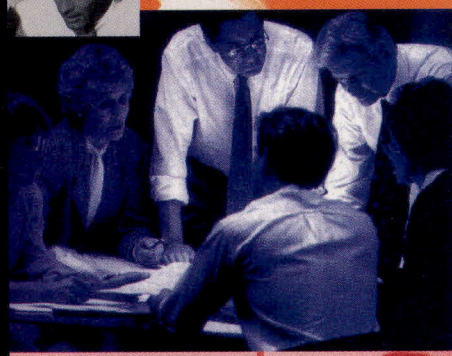
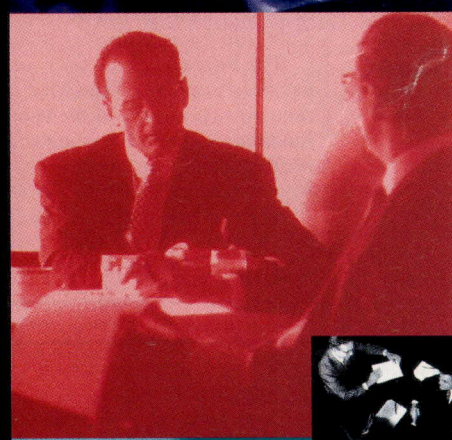
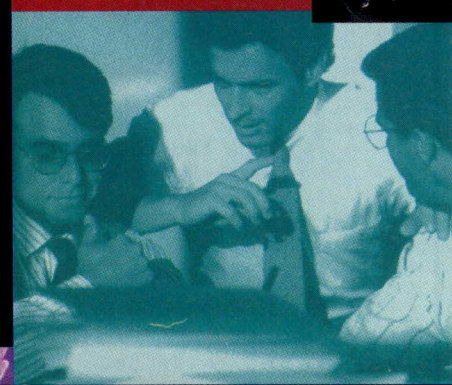
Entrance to the exhibition is free with a ticket - just call 0181 984 7711. For further information on conference programmes and booking details call Tracy Collins on 0171 388 2430 or complete the coupon below.



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Minding your P&Qs

Politeness costs nothing but if you don't follow Internet etiquette you may pay the price. **Jason Manger** *explains how to avoid those social gaffes*

With a population approaching 30 million people and its own rules and customs, the Internet is almost a country in its own right. But what is Internet culture anyway?

The term 'netiquette' (network etiquette) specifies the customs and protocols that users should observe when using the Internet.

Netiquette only really becomes relevant when communicating with other people on the network. A network made up solely of email messages posted from users all over the world exists in the form of a system called Usenet (Users' Network). This is a vast entity with over ten thousand forums or hierarchies. As such, it is not the easiest of systems to penetrate and the continuing development of Internet culture has given rise to all manner of strange customs and rules which concern how messages are structured and posted.

If your messages are to be effective and taken seriously, posting global email messages to Usenet (as well as individual messages posted on a person-to-person basis) can require extensive knowledge of the Internet's culture. Usenet has adopted many guidelines over the years, the most common of which concern the actual content of the messages posted to its newsgroups.

Given its ease-of-use and cheapness – there are no international call charges, remember – it is predicted that in a few years email will replace the fax.

Email etiquette is mainly concerned with the structure of messages and the recipient(s) that they are eventually posted to. Here are some points to consider. Many email messages are rhetorical, that is to say they are requests for information, ie 'Where can I find resource XYZ?'. The actual content of such messages should not be too demanding, but should be approached in a casual and friendly way. For example, you may want to introduce yourself first and then explain why you need the information. Also, make sure that the question you are asking is not covered in existing (and easily accessible) literature.

For a start, irrelevant messages can generate irritated responses from many users. Similarly, articles posted to the wrong newsgroup are also frowned upon. All of these errors are usually the work of novice Internet users.

To overcome this, many, although not all, the mainstream newsgroups periodically post a FAQ (frequently asked questions) document. Novices must read the FAQ in order to ascertain the subject matter of the newsgroup and the type of articles that it attracts. If you can't get hold of the FAQ, you may want to browse through the group to see the type of articles posted and to note those that attract flames.

Flaming is the posting of argumentative or critical comments in response to an article that has been previously posted.

If you express a particular point of view, or post newbie-style questions (newbies are Internet newcomers, by the way), expect to receive flames in due course. Many flames are simply posted back to the original newsgroup, so that the message originator can be embarrassed 'on air'.

Newbies and Internet novices are causing a lot of grief for established Internet users. One flame war currently raging concerns America On-Line users (AOLers). Since AOL became established on the Net it has introduced thousands of Internet novices, many of whom in turn post thousands of irrelevant and superfluous messages to Usenet.

This has the effect of clogging up the system, extending the size of some newsgroups to the point where many news administrators are dropping forums, simply because of the disk space needed to store all of the messages.

Finally, we have flame baiters, or people who deliberately start a thread of messages (threads are messages with the same subject line), just for the sake of stirring up a heated debate.

Superfluous messages can often generate angry responses or 'flames' from other users

Uncle Sam

Laughing

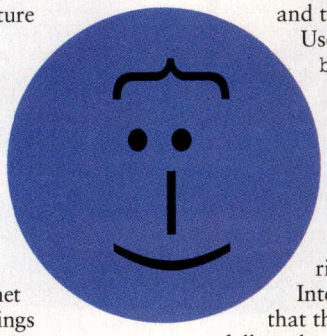
Expect to find hundreds of these individuals on the Net.

Email subject lines (these appear in the email header) should also be chosen carefully. Experienced Internet users will ignore messages with subject lines that do not catch their attention, or those which imply that you are an Internet novice. For example, the subject line 'HELP ME!!!' may not be a wise choice. Go for keywords rather than long sentences.

Smileys are characters, grouped to form a face, to exhibit human emotions in textual messages

Spelling mistakes are a vexed area. Given the casual nature of email messages in general, many users ignore spelling mistakes. Of course, spelling will be a priority in a document that is a polished piece of work but messages sent on the fly do not have to be so rigidly checked. And, of course, since the Internet is a global network, spellings may differ between countries.

New hairstyle



The posting of superfluous articles is another problem. Some Usenet forums attract specific types of postings. For instance, the group `alt.binaries.pictures.misc` attracts binary postings (in this case, images), and yet users still post textual messages to the group, when in fact they should go to the discussion group `alt.binaries.pictures.d` (note the `.d` on the end).

In order to make messages light-hearted and humorous, a whole language has evolved in the form of 'smileys' and other 'emoticons'. The most common smileys on the Net include **:-)** for a happy emotion and **:-(** for a sad emotion.

Various other smileys are also in common usage, for example **;-)** for winking, which is mainly used to get over subtle innuendoes. Other emoticons include <g>, which stands for grin and is commonly used to take the seriousness out of a statement.

Apart from smileys, Internet culture has also developed a number of acronyms which are used within messages. RTFM, for example, which stands for 'read the f****** manual', is commonly used in response to newbie-style Usenet postings which are so ridiculously simple that they do not warrant inclusion in a particular newsgroup. RTFM has become so popular that an Internet host has been named after it! (`rtfm.mit.edu`). Another well known acronym is IMHO ('in my honest/humble opinion').

Partied all night

As well as smileys and acronyms, signatures are also heavily used in email messages. These consist of a few lines of text appended to an email message. They commonly include quotes from the famous (and infamous); Dan Quayle quotes are a personal favourite, as well as disclaimers from individuals.

Other pictorial representations built from standard keyboard characters are also used in signatures. In fact a whole new art form has started.

Another cultural aspect of the Internet concerns advertising and other commercial traffic. Strangely, advertising is already well-established on the Net. Dozens of providers advertise their services and resources on-line, and there are business-oriented Usenet newsgroups (see the `biz.*` hierarchy). In addition, the number of commercial Internet hosts (these have hostname extensions like `.co.uk` and `.com`) are also growing dramatically.

Commercialisation rings alarm bells for many Internet individuals who fear that the Internet will gradually follow the same route as many commercially-run online systems, such as Compuserve, Delphi et al, which advertise themselves as Internet service providers but which have dreaded online charges, as well as specific charges for accessing relevant forums.

So be warned, advertising goods and services in non-commercial forums may start a serious flaming session, as demonstrated by the notorious Canter & Siegal. This US Law firm posted thousands of messages to just about every Internet Usenet forum to promote its services. This action started a massive flame-war and ended with the company having its Internet account deleted.

However, the firm seems to be none the worse for its little 'advertising' venture, having appeared on just about every radio and television show across the US.

Spamming is the name given to the cross-posting of the same article to many different Usenet newsgroups, thus replicating superfluous messages over the entire Internet. This particular activity is punishable by a fate worse than death. Expect a few dozen ten thousand-line email messages consisting of nothing more than gibberish (plus a few expletives) aimed at your Internet mailbox. This will then probably result in your service provider banning you because its system is clogged up forwarding your email.

The cultural evolution of Internet hostnames is another area which has been attracting attention recently. Just what is the best (or hippest) domain prefix to have? As you may know already, all Internet hosts have unique hostnames made up of a machine and/or network name, followed by a domain prefix, for example `sony.com` for the commercial electronics giant.

Smoker

Just like personalised car number plates, specific hostnames are now in high demand. UK users no longer want `.co.uk`. Instead they want `.com` prefixes. In the case of this example, a `.com` (commercial domain) prefix denotes a degree of independence in that it is not immediately obvious where the host actually resides, just as a customised car number plate hides its age (most `.coms` are in fact based in the US, although it is now possible to be registered as a `.com` in other countries as well).

Some Internet hostnames have been chosen from our own cultural up-bringing. Expect to find hosts named after Star Trek characters and other TV and radio programmes, and readers interested in Internet culture generally may want to read `alt.culture.internet`.

To round up, here are some netiquette guidelines for you to bear in mind:

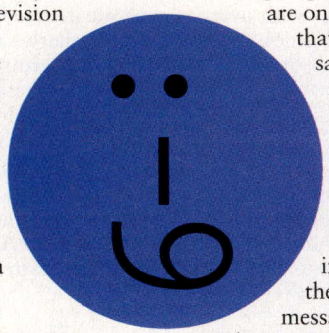
Browse extensively before posting messages on Usenet. This is a good way of gauging how articles should be structured, as well as seeing the type of articles that should, ideally, be posted.

Keep Usenet messages terse. Individual email messages can, of course, be extended since you know the recipient will be interested in your feedback.

If responding to a message in a Usenet forum, post an individual email message to the recipient, rather than posting it back to the whole group, since the group as a whole will probably not want to be bothered with your one-to-one discussions unless they have ramifications for the entire newsgroup.

Never demand results and do not post offensive messages to Usenet, especially to individuals. An Internet libel case is already in progress so you may consider using an anonymous alias in such cases (email `postmaster@anon.penet.fi` for more details on this).

Never post an article to multiple newsgroups (spamming) unless there are only two or three in existence that deal specifically with the same subject (users may not receive a particular newsgroup from their own server).



Licking lips

Remember to use smileys and other emoticons to get a message across, especially if you don't wish to insult the recipient(s) of your message intentionally. Beware, humour can differ significantly between countries.

Subject lines should be chosen carefully, so as to catch the eye of the reader, but use short, concise subject lines or keywords. **<end>**

Jason Manger is author of *The World Wide Web, Mosaic and More*, published by McGraw-Hill. Selected chapters are in hypertext form at `www.quadralay.com` under the Net-miscellany hyperlink.

FREQUENTLY ASKED

Questions AND answers

Don't be afraid to ask, because this is where agony uncle Marc Nicholas answers all your questions about the Internet. Send your queries to **internet@computing.emap.co.uk**

Q What is the difference between a BBS, such as CompuServe, and a full internet connection?

A BBS systems like CompuServe have host computers attached to either a private network, a non-Internet public network such as UUCP or Fidonet, or the Internet. When you connect to these services, you merely have an account within this computer. Therefore you are limited to the facilities and applications contained within this machine. For example, you can't use fun applications such as Mosaic.

A full Internet connection via SLIP or PPP makes your computer part of the Internet network for as long as you're connected. The only limitations on what you can do with this connection is based upon the applications software you have on your machine and the services available on the Internet.

Q What sort of machine do I need to run a Web server?

A Most Web servers run on Unix machines using either the Cern or NCSA httpd daemon (a daemon is a background Unix program). Unix boxes make an ideal choice for a Web server because they generally offer a native TCP/IP environment, handle multiple users efficiently, and usually have plenty of storage.

However, you don't actually need a Unix machine to run a Web site. Software exists for Windows and Macintosh to facilitate running a Web site – WinHTTPD and MacHTTP respectively. These programs offer the advantage that you can easily manipulate the files that go into building a Web site, and it's easy to edit graphics files and then incorporate them.

To actually create a Web document, you will need to learn a simple scripting language called HTML (HyperText Mark-up Language). HTML is interpreted by the Web client (Mosaic etc) and used to format the text and graphics contained in the document.

Check your local FTP site for copies of either the Cern or NCSA httpd, WinHTTPD or MacHTTP. Hint: `ftp.demon.co.uk` and `ftp.doc.ic.ac.uk` carry at least some of the above.

Q What is Telnet and how do I use it?

A Telnet is a utility program that allows you to 'log in' to another Unix machine across a network.

For example, you might work for a company in London that has an office in Los Angeles which has a piece of software you do not possess locally. You could telnet to the LA office and use that machine as if you were directly connected to it. It is also very common on the Internet to find resources such as Archie or text-based WWW available on machines that allow telnet access. This means you can log on to one of these machines and use the application as you would locally.

Q I am trying to obtain a copy of NCSA Mosaic from their FTP site but keep getting the following error message: `Error:unknown username at that address.` **I am new to the Internet so could you offer any advice?**

A There could be a number of things happening here.

When you connect to a public FTP site, you normally log in as an anonymous user by using the user name anonymous. Make sure this is the user name you're using and not your own name.

Secondly, the password that you supply should normally be your fully qualified email address. That is `user@site.country`. Some sites will reject connections unless they detect the presence of the `@` symbol and a full stop.

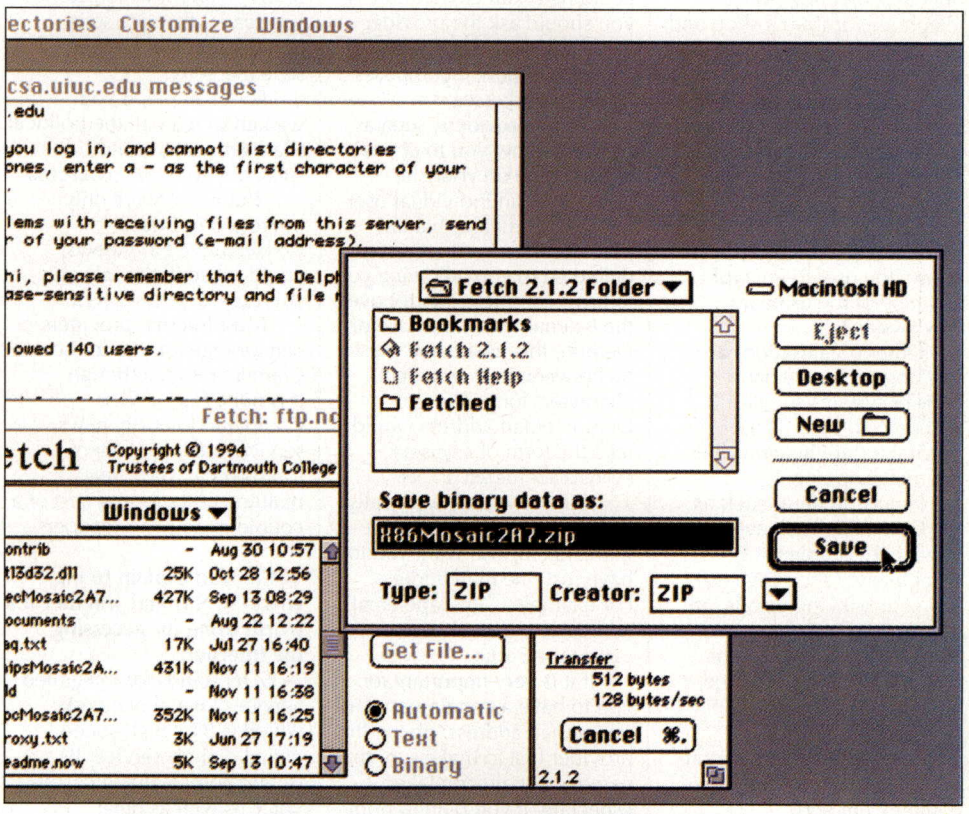
Thirdly, some sites perform a reverse DNS look-up on any machines making a connection. They take the IP address of the connecting machine and try to cross-reference it against a domain name. If the DNS records to do this are not available, then the FTP will fail.

As a last resort, there are other sites that carry the NCSA software, like London's Imperial College at `ftp://ftp.doc.ic.ac.uk/pub/packages/www`. You will probably get faster performance if you use this site, too.

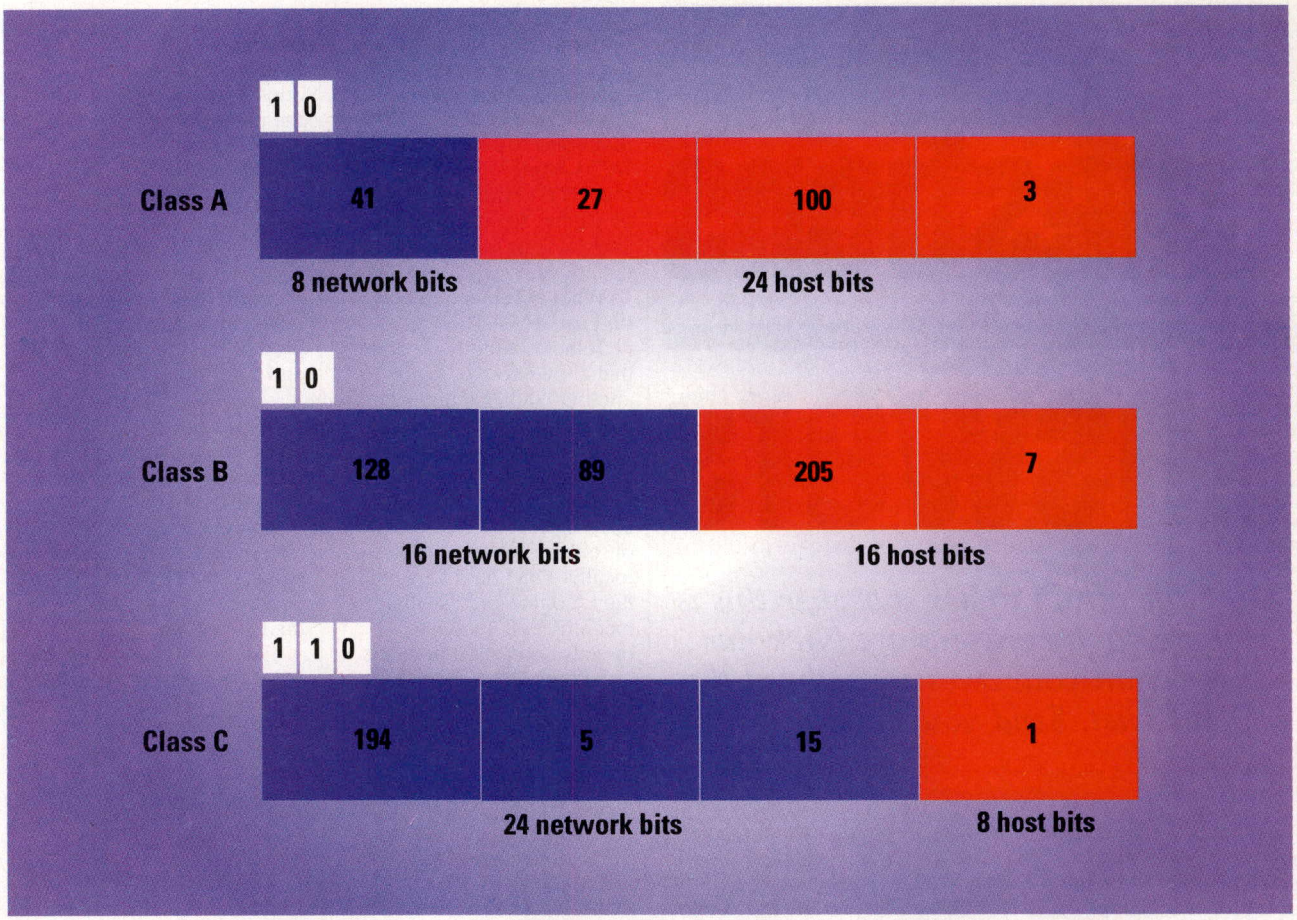
Q If I want to buy something, is it safe for me to send my credit card details over the Internet?

A It is often assumed the Internet itself is inherently insecure, but in reality this is not normally the case.

For someone to intercept your credit card details they would either need to install a network 'sniffer' between your



Mosaic can be found at `ftp.ncsa.uiuc.edu`**. Log on with the user name:** `anonymous`



IP: Next Generation – a class act – will solve the address shortage problem in the current 32-bit IP addressing system

system and the recipients, or actually monitor your mail system. The latter is probably easier in most circumstances as most Internet providers don't normally allow network sniffers on their networks!

In fact, you are taking about the same risk as buying something over the telephone, or from a shop and leaving the slip for the retailer to destroy.

For those worried about security, there are a number of options. The first is simple encryption using a program such as PGP (Pretty Good Privacy). PGP is available for numerous platforms and allows the user to encrypt any type of file using a 'key' system.

Other organisations are working on secure data transfer systems such as secure Web sites. These will be vital for applications like Internet shopping.

Finally, systems such as the Dutch Digicash avoid the credit card problems completely. Once Digicash has your banking details, all transactions are performed using its banking software which is double encrypted and virtually un-hackable.

See the FAQ Legal Column on page 50 for more information about this complex but very important area.

Q How do I decide what my email address should be? Should I know before I phone an access provider?

A Different Internet providers structure customers' email in different ways, depending on their own preference and how their system is set-up. Before deciding on an email address, you should ask the provider for details of its service and an example of how it composes its email addresses.

Some providers, such as Demon, allow you to choose a host name on your site rather than an individual user name. This means that any mail destined for that host is delivered to you, allowing you to have complete control over the usernames. In the case of Demon, this host name must be between four and eight characters long. Thus, a Demon email address would take the form of `anyuser@myhostname.demon.co.uk`

Other services, especially the ones that use the POP3 mail system, will want you to have just one mail address. For example, Cityscape email addresses are `username@cityscape.co.uk`.

If it is very important for you to have a certain name in your email address, phone the provider first to make sure that name is not already taken – especially if you plan to print your address on stationery.

Q I've heard about a service called ClariNet. What exactly is it?

A ClariNet is a news wire service that uses the Usenet system to distribute its stories. One advantage of news services distributed this way is that you can be extremely selective about which stories you read – they are split up into a typical Usenet-style hierachy.

For example, if you wanted to read all the political ClariNet news, you'd subscribe to: `clari.politics`

But it you were only interested in British Conservative Party news, you'd subscribe to: `clari.politics.britain.torys`

Most Internet providers can arrange for you to receive ClariNet news, although it is not a free service. Compared to costly news services such as Reuters, ClariNet can offer near-realtime news for the cost of a couple of daily newspapers.

Q Can you explain to me what ISDN is and whether it's worth using for accessing the Internet.

A ISDN stands for Integrated Services Digital Network, which is BT's high-speed, digital dial-up service. Its selling point is that it carries voice as well as data.

Essentially, ISDN allows data transfer speeds of up to 128Kbps, if both channels are used simultaneously. Each channel costs the same to use as a normal phone line, so for the cost of a local call, a user can connect to the Internet at around four times the speed of a top-end modem.

ISDN is definitely a good connection for Internet usage but the drawback for the home user or small business is the charge for having a line installed. At present this costs around four times as much as having a PSTN line put in, which may make it prohibitive for many.

Q I've heard about something called IPng recently. What exactly is it and why will it replace TCP/IP?

A When TCP/IP first evolved it was deemed that the four byte (32-bit) addressing range used would be ample for the expected growth of the Internet. However, to simplify administration of this, the whole 32-bit addressing range was reduced by introducing an address 'Classes' scheme.

Class A addresses use the first byte of the four-byte IP address to refer to a particular network. Because the first bit is always zero, this means that there are only actually 127 possible networks in this range. However, address 0 and address 127 are reserved

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for special purposes (default route and local loopback) so only 125 Class A addresses are available on the Internet. These addresses have a huge (24-bit = 16.7 million) host range and are therefore only used by large corporations.

Class B addresses have a first byte in the range 128 to 191. However, the second byte of a Class B network is also used to identify an individual network, with the last two bytes identifying hosts within that network.

Class B addresses are now very hard to obtain and are generally reserved for very large corporations or network service providers.

Class C networks use the first three bytes to identify a network, and the last byte to identify a node within that network. Because 0 and 255 host addresses are always reserved for broadcast information, this means a Class C network can have up to 254 host machines.

Another class exists, known as Class D. Class D addresses are multicast addresses and used to broadcast the same information to many machines at once. They are not in general use. IP addresses are running out rapidly. All Class A addresses have been assigned and it now requires justification to get a Class B network. So the Internet Engineering Task Force (IETF) set about defining a new standard for Internet addressing. In homage to Star Trek, this is called IP: Next Generation.

IPng, as it is known, will use 16 bytes (128-bits) rather than the current four (32-bits). This will greatly increase its addressing range which will solve the problem of the four billion current IP addresses running out. (IPng will handle a trillion networks and a quadrillion users).

IPng will also solve a number of other problems. For example, it will offer a form of dynamic address allocation. Anyone familiar with an Appletalk network will know you can plug in a machine and it will work out a non-conflicting address.

This is the principal being adopted by IPng, although users requiring large addressing ranges will still be able to manually apply and set addressing. <end>

Marc Nicholas is president of PIPEnet, a Toronto-based Internet consultancy. His email address is marc@rednet.co.uk

FAQ LEGAL COLUMN

The Law is unsettled

Business and the Internet will be awkward companions until a few legal infrastructure issues are ironed out. The Internet is too new and it moves too fast for the staid processes of the law to get ahead or even keep up most of the time.

With this column, written and researched by Paul Lavin, who has a doctorate in jurisprudence, **INTERNET** *tries to provide practical guidance for business users where the law is, as yet, unclear.*

Q What are the risks of using your credit or charge card on the Internet?

A While unencrypted credit card details sent onto the Internet are susceptible to 'eavesdropping' and subsequent misuse, the main risk of buying something over the Net lies in the unsatisfactory legal relationship between buyer and seller when the cardholder is not physically present for the transaction.

Whenever you give the details of your credit or charge card you are in the lap of the gods, whether it's over the phone or the Internet! Because Access or Visa, the two biggest credit card companies, do not discriminate between Internet-borne sales transactions and more conventional phone orders, it is vital to know what their position is.

If you give your card number and details to a merchant and are not physically present, you are liable for whatever charges they put through on your account. It doesn't matter where the error arises, you have to pay the bill. Fortunately, most merchants can be trusted and hardly any transactions become a source of difficulty.

Spokespersons for both the major card companies expressed a belief that the vast majority of problems reported are simple, honest mistakes, and most of the rest are misunderstandings on one side or the other. The honest mistakes and misunderstandings are usually solvable with a single telephone call or letter. Only a very tiny minority of errors, the card companies insist, are fraudulent.

It is, of course, convenient to quote your card in email but convenience can have an unexpectedly dear price. Unless some other law applies (The Sale of Goods Act) or some bonding organisation (like ATOL or ABTA for holiday bookings), you are left with rather informal procedures on the part of the card companies or recourse to court.

If you have a complaint, the card companies say that they will take the matter up on your behalf, but this is not the same as crediting your account with the amount in question. The companies will expect a letter from you outlining the problem, which they will then forward to the merchant involved. They can recommend solutions and encourage settlement but in the end it's up to the merchant to initiate any refund or credit.

The phrase 'take the matter up on your behalf' is less than totally reassuring. While the card companies can take sanctions against repeat offenders by removing their ability to take charges, that 'remedy' won't help rectify any transgressions that have already happened. The reassurances from premium card companies like Diners Club are somewhat more mollifying but, in the end, it may come down to a matter of proof.

Since most credit card transactions now conducted over the Net are not protected by any sort of public key encryption, a printout of an email is pretty poor proof of the substance of a transaction or the identity of the correspondents.

Anyone could fabricate or edit an email message to prove almost any point, so it is therefore impossible to say if the copy tendered as documentation for the intended transaction is in fact a true and exact copy of the original.

Recourse to the courts is to be avoided if at all possible. While small claims courts are accessible (no solicitor is required, filing fees are low and the procedures are simple) to almost any one with a claim below £1000, it can be a time-consuming process and you will be confronted by the problems of proof, even in the small claims courts with their much more relaxed evidential procedures. Also, once you have won a judgement, you still have to collect the money from the merchant. This can take even more time and trouble.

If you are buying something from abroad, an unsatisfactory transaction may be even more difficult to remedy. The major cards all have international divisions which will chase problems around the globe, but their help is voluntary and the sanctions that they can bring against offending merchants are limited from your perspective.

To avoid problems you should insist on a confirming fax or, better still, letter, so that the details of the transaction are established concretely before you turn the merchant loose with your card details. Also, a bit of circumspection as to the type of merchant you deal with will help. Few would have a problem giving their card numbers to Harrods, but to a vendor in the back of some PC magazine in Godknowswhere, Essex? If in doubt, the best way to protect yourself from credit card fraud is to pay by cheque.

This is hardly an endorsement of doing business on the Internet but until the law is fashioned to protect the shopper in this type of transaction, let the buyer beware.

How do I get connected?

The question in the minds of most potential users interested in the Internet is: how do I get connected? Although different aspects of getting online are covered in other parts of the magazine, we thought it might be useful to give readers a simple reference guide to the process.

1 Have a clear idea of what sort of access you want. Do you just need email? Email and Usenet news (ie UUCP)? Or full IP access (ie WWW, FTP etc)? To make this decision, work out why you want the connection. If it is to stay in touch with the world, email will suffice. If you want to take advantage of the colourful world of Web, you are going to need a bigger 'pipe', which is obviously going to cost you more money.

2 If possible, find a friend who already has Internet access and have a play with their set-up. This is a good idea because it's all very well reading about the Net in this and other magazines, but it's hard to imagine what it's really like until you've been there.

Obviously you'll fare a lot better when talking to providers if you know what you want before you approach them. Finding someone to do a demo for you is usually fairly simple, as most Internauts love to show off what the Net can do!

3 Once you've familiarised yourself with the potential of the Net, contact several access providers and compare the different advice they give.

Don't go with the first one you talk to but shop around and see what each company recommends. Also, make sure that the provider you choose has a connection point (point of presence or POP) near to where you want to dial from.

If thought through properly, your Internet usage need not cost an arm and a leg, and local telephone charges will make a big difference. Afterall, it's no use securing yourself an ultra cheap deal if you have to make a long-distance call to reach its POP. The most common error made by the Internet naive (newbies), is not understanding the difference between BBS, UUCP and full IP access properly.

4 A bulletin board system (BBS) is a connection whereby you are NOT actually connected to the Internet. What this entails, is dialling into a machine that is connected, using its processor and software to access the Internet, and the results of these operations are relayed back to your machine.

What this means in reality, is that you can only perform operations that the applications on your BBS's computer can run, and allows you to run remotely. Many developments are working towards improving the BBS interface, but at present you will not be able to run Mosaic-type browsers, with text, graphics and sound.

UUCP is a sort of half-way house between BBS and full connection. It is a protocol that allows for the passing of email and Usenet news, but does not provide access to anything else.

When users talk of full Internet connectivity, what they are referring to is IP access.

All full connections of this nature are essentially the same, no matter what capacity of link you have – modem, ISDN, X.25 or leased line. The underlying principle, is that you must have a computer running the TCP/IP protocol stack, a link to a machine running the same, and an account on that machine.

If you are using a modem and the telephone network, you will need a piece of software known as the Point-to-Point Protocol (PPP) to encapsulate the TCP/IP as it goes down the telephone. (An older, but still in use, alternative is the Serial Line Interface Protocol or SLIP.)

Whether you are a home user beavering away in the study or a multi-national looking to link up all your offices, you will be using one of the above connection methods at some point in your network. What will differ considerably is what happens on your side of that connection.

5 Find out from the access provider exactly how much support, on-site maintenance and software you will receive as part of your contract.

One of the attractions of the Internet is the vast amount of free software available online, but this is very chicken and egg. You can't get at this software unless you already have some form of access to the Net. Make sure your access provider can accommodate this, even if it means posting you a floppy disk.

One point that worries potential users is how to sort out a domain name, ie what you will be known as on the Internet. It is worth considering what you would like it to be before proceeding, but from a technical point of view, your service provider will sort this out for you and register your domain name.

Try to choose a name that tells people who you are, and try to make it as short as possible – `queen@winsor.co.uk` is a good one, `elis.sec@win.cas.lsfghtlgsd.co.uk` isn't!

6 The step between obtaining an account, and starting to use it, is still the hardest part of the whole process. If you are not a TCP/IP specialist (which 99.9% of new users aren't) you can do one of the following.

Get a friend, colleague or professional outfit to set it up for you. Once you have struggled through the process once, and accomplished the ultimate goal of seeing your Web browser jump to life, you will be able to do it again and again. Users that have already installed a connection are obvious targets for your technical queries.

Employ the services of your access provider to perform the installation. Most access providers will offer to deliver the software/hardware, configure it and make sure it is working, but this will cost you. You may deem it sensible to pay for this privilege, but make sure you know exactly what you are getting for your money.

Read the **INTERNET** Guide to Installing TCP/IP (in next month's issue), make sure you have all your access details at hand, and make a cup of coffee. If all else fails, it is not impossible to install the correct software in the right places and then configure it yourself. You need a good guide, the relevant information from your service provider, and some patience.

7 Once you have acquired the minimal software and have obtained a connection, all the additional resources you need are available on the Internet.

As far as possible, experiment with your connection using shareware software. You can decide later what software is worth buying, once you have some experience of what exactly it is you want to do.

8 Once online, don't try to run before you can walk. Spend time reading newbie documents and help files. Take a look at the relevant FAQ (frequently asked questions) files before posting to newsgroups – most questions have already been asked – and answered – already. That said, if you do need assistance, it is quite easy to find an experienced Net user to help.

Make sure you learn about is Netiquette, try not to abuse Net resources.

Finally, all that remains to be said is go for it and have fun – at it's best, the Net is a great place to be.

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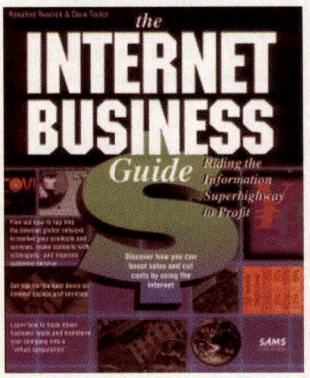
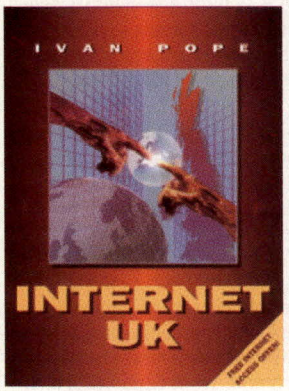


The Internet Business Guide
Rosalind Resnick & Dave Taylor, 418pp, Sams Publishing, £22.95

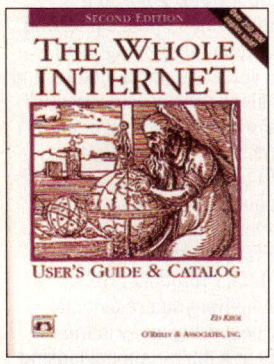
Subtitled *Riding the Information Superhighway to Profit*, this book provides a comprehensive round-up of the business that was being conducted on the Internet during 1994. The issues addressed by the authors include:

- Ways to use the Internet successfully to market your products and services
- How to create an Internet database, customer support centre and cyber-storefront
- Boosting sales, cutting costs and tracking down business leads by using the Internet
- Protecting your organisation from hackers, crackers and vandals
- How well businesses on the Internet have been doing



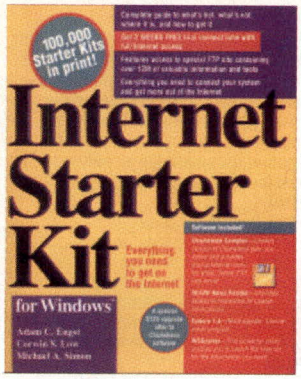
Internet UK,
Ivan Pope, 298 pages, Paramount Publishing, £19.95

The first book all about the Internet from a non-US perspective. Ivan Pope is one of the true pioneers in this field in the UK, and his book offers a wide-ranging account of how the Internet scene has been developing. There's coverage of what some of the main access providers have to offer, together with lists of British-based Usenet groups and commercial domain names. One month's free Internet access from CityScape comes free with the book.



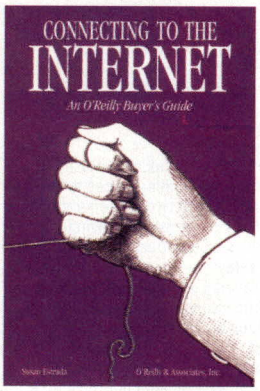
The Whole Internet User's Guide & Catalogue, *Ed Krol, 558 pages, O'Reilly & Associates, £18.50*

This is an absolute classic – and deservedly so. The second edition of *The Whole Internet Catalogue* has been updated to include sections about the use of modern Web browsers for storing and distributing information. It also includes updated coverage of multimedia email (MIME), Gopher, WAIS and Archie. There's also extensive coverage of what's legal, or at least tolerated, on the Internet, and what's not.



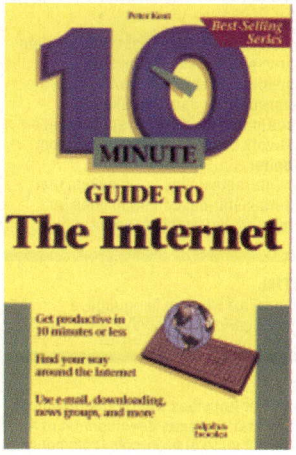
The Internet Starter Kit, ***Adam C Engst et al, 900+ pages, Hayden Books, £27.50***

One of the classic door-stoppers, this book tells you almost all you're ever likely to want to know about the Internet, in two versions: one for Windows-based PCs, the other for Apple Macintosh computers. Unlike the more cerebral *Unleashed*, this is a very practical book that covers all the history and the 'how to' of all the main Internet services. Also included is a disk containing Internet utility software.



Connecting to the Internet, ***Susan Estrada, 176 pages, O'Reilly & Associates, £11.95***

An alternative to the popular *10-Minute Guide*, This book provides practical advice in a concise and carryable format. Topics include how the Internet works; understanding network performance; how to use the Internet; and how to use a network provider. It's US-biased, but a useful general introduction.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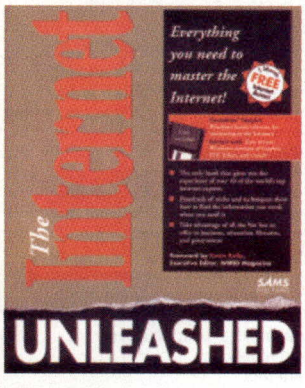
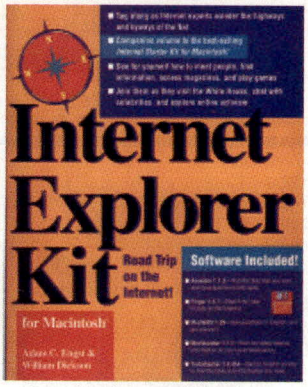
The 10 Minute Guide to the Internet, ***Peter Kent, 164 pages, Alpha Books, £9.95***

One of our most popular books, the *10-Minute Guide* has been a big hit at the conferences and exhibitions we've attended. Low on page count, but extensive and concise, for once the publisher's blurb 'Get productive in 10 minutes or less' is a reasonable claim. Topics covered include: how to connect; sending and reading email; finding files; working with news; and listserv groups; and more.



The Internet Unleashed, ***Various authors, 1398 pages, Sams Publishing, £40.95***

The biggest of them all, *Unleashed* includes articles by all the Internet world's top movers and shakers. You'll never get it into your brief case, but you'll find it hard to ignore. It's impossible here to give even a flavour of its content, but suffice to say, it has contributions from every major Internet provider, including several from outside the UK. Also included is a disk containing Internet utility software.



The Internet Explorer Kit, ***Adam C Engst et al, 400+ pages, Hayden Books, £27.50***

Sequel to *The Starter Kit*, this is also in Windows and Apple Macintosh editions. A slimmer volume, but still over 400 pages, the focus is much more on proper social behaviour on the Internet and how to set up your own web server and news groups. This also includes Internet utility software.

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THE GLOSSARY

Acronyms abound and the terminology can be confusing, but **THE INTERNET GLOSSARY** *makes sense of it all*

10Base-T
The IEEE 802.3 specification for network cabling which specifies using unshielded twisted-pair cable running at 10 Mbps, with a distance limit of 100m per segment.
56 Kb line
Actual capacity of a 64 Kbps channel.
64 Kb channel
The lowest level of the digital hierarchy, a single 64 Kbps voice or data channel.

agent
A part of the system that performs information preparation and exchange on behalf of a client or server application.
anonymous FTP
A service that makes files available to the general Internet community, FTP allows files to be transferred to or from a host, without the need for a user ID on that host (also known as anon FTP).
ANSI
American National Standards Institute, a member of the International Organisation for Standardisation (ISO).
API
Application Program Interface, a set of calling conventions that defines how a service is invoked through a software package.
application
Software that provides a set of services such as electronic mail or file transfers.
Archie
A service that provides a quick, easy way to scan the offerings of countless anonymous FTP sites.
ARPANET
Advanced Research Projects Agency Network, a packet-switched network developed in the early 1970s. The grandfather of today's Internet, it was decommissioned in June 1990.
asynchronous transmission
A method by which data is transmitted from one communication device to another. Data is sent one bit at a time. Each character is framed by a start bit and a stop bit and is not dependent on the timing between the transmitter and the receiver.

backbone
The primary connectivity mechanism of a hierarchical distributed system. All systems that connect to an intermediate system on the backbone are assured of connectivity to each other. This network does not prevent systems from setting up private arrangements with each other to bypass the backbone for reasons of cost, performance or security.
baseband
A characteristic of any network technology that uses a single-carrier frequency and that requires all stations attached to the network to participate in every transmission. See broadband.
baud rate
The actual frequency being used to transmit data. Often used incorrectly as an equivalent to bits per second (bps). For example, both ITU-T V.22bis (2400 bps) and V.22 (1200 bps) modems transmit data at 600 baud, but V.22bis modems use four bits per symbol and V.22 modems use two.
BBS
Bulletin Board Service, an electronic host system that posts news, discussion groups and email. BBSs are typically accessed via analogue dial-up modems.
bit
A contraction of 'binary digit', the smallest unit of information in a binary number system. Eight bits are needed to create one byte or character.
bps
Bits per second, the speed at which bits (electronic signals) are transmitted.
bridge
A device that connects two or more physical networks and forwards packets between them. Bridges can usually filter packets, ie only forward certain traffic. Related devices are repeaters, which simply forward electrical signals from one cable to another, and full-fledged routers, which make routing decisions based on several criteria.
broadband
The characteristic of any network that multiplexes various independent network carriers onto a single cable. Multiplexing usually occurs by dividing frequency. Broadband technology allows several networks to coexist on one single cable. Traffic from one network does not interfere with that from another because the conversations happen on different frequencies, as they do on commercial radio systems.
broadcast
A packet-delivery system in which a copy of a particular packet is given to all hosts attached to the network. An example is ethernet.

CCITT
International Consultative Committee for Telegraphy and Telephony, previously a unit of the International Telecommunications Union (ITU) of the United Nations, now known as ITU-T.
CIX
Commercial Internet Exchange, a working consortium of carriers that provide Internet services to the commercial marketplace (not to be confused with the UK BBS of the same name).
client/server model
A common way to describe network services, the programs of those services, and the way they relate to each other.

datagram
A packet that holds data to be transmitted on a network. See IP datagram.
dial-up
Method of using PSTN or ISDN to connect computers over modems with remote lan access routers and/or terminal servers.
DNS
Domain Name System, the distributed name/address mechanism which is used in the Internet.
domain
Part of an Internet naming hierarchy. Syntactically, an Internet domain name consists of a sequence of names (labels) separated by full-stops; for example, `tundra.mpk.ca.us`
dotted-decimal notation
The syntactic representation for a 32-bit integer that consists of four eight-bit numbers written in base 10 with periods separating them. Used to represent IP addresses in the Internet, as in 192.67.67.20. See IP.

encapsulation
The technique used by layered protocols in which a layer adds header information to the protocol data unit (PDU) from the layer above. For example, in Internet terminology, a packet would contain a header from the physical layer, followed by one from the network layer (IP), followed by another from the transport layer (TCP), followed by the application protocol data. See PDU, IP, TCP.
ethernet
A physical medium for transmitting lan traffic at speeds up to 10 Mbps.

FAQ
Frequently Asked Questions documents are files scattered around the Internet to convey information on practically every subject. The logic behind them is that if somebody needs to know the answer to a question, chances are another user will have already asked it and found an answer already.
FDDI
Fibre-Distributed Data Interface, an emerging high-speed networking standard. The underlying medium is fibre optics and the topology is a dual attached, counter-rotating token ring. You can spot FDDI networks by their orange fibre cable. See token ring.
flame
To express strong opinion and/or criticism of something, usually as a frank, inflammatory electronic message.
FidoNet
A long-established network of electronic bulletin board services.
finger
A method of accessing a site to receive an automatic response.
firewall
A network security device which, when penetrated, closes the gateway to the network.
fragmentation
The process of breaking down an IP datagram into smaller pieces to fit a given physical network's requirements. The reverse process, surprisingly enough, is called reassembly.
frame relay
A fast-packet technology that offers switched virtual transmission services at speeds up to T-1.
freenet
Typically a local Internet access service and/or bulletin board service offered free of charge.
FTP
File Transfer Protocol, the Internet protocol (and program) used to transfer files between hosts.

gateway
A computer system that transfers data between normally incompatible applications or networks. A gateway reformats the data to make it acceptable for the new application or network before passing the data on.
Gopher
An interactive fileserver system that offers menu-based capabilities for browsing Internet resources.

HTML
HyperText Markup Language, a language for writing WWW pages.

IAB
Internet Activities Board, the technical body that oversees development of the Internet suite of protocols (commonly referred to as TCP/IP).
IEEE
Institute of Electrical and Electronics Engineers.
IESG
Internet Engineering Steering Group, the executive committee of the IETF.
IETF
Internet Engineering Task Force, one task force of the IAB. It is responsible for solving the short-term engineering needs of the Internet and has more than 40 working groups.
IGP
Interior Gateway Protocol, the protocol used to exchange routing information between collaborating routers on the Internet.
internet
If not capitalised, internet refers to any collection of distinct networks interconnected by routers that allow the networks to operate as one internetwork.
Internet
When capitalised, Internet refers to the worldwide network of networks connected to each other using the IP protocol suite. The Internet provides file

transfer, remote login, electronic mail, news and other services. To be on the Internet, you must have IP connectivity, ie be able or ping other systems. Networks with only email are not actually classified as on the Internet.

Internet address
A 32-bit address assigned to hosts using the TCP/IP protocol. See dotted-decimal notation.

Internet mail agent
Software that allows two or more electronic mail systems to connect and transfer data.

IP
Internet Protocol, the network-layer protocol for the Internet protocol suite, is the most important protocol on which the Internet is based. It allows a datagram to traverse multiple networks on the way to its final destination.

IP datagram
The fundamental unit of information passed across the Internet, an IP datagram contains the following: source and destination addresses, data and fields that define such things as the datagram's length, the header checksum, and flags to say whether the datagram can be, or has been, fragmented.

IPX
Internetwork Packet Exchange, the underlying protocol in Novell NetWare.

IRC
Internet Relay Chat is best described as a cyberspace version of CB radio. It is a real-time talk system that's split into 'channels'. By joining a specific channel, you can take part in that public discussion.

ISDN
Integrated Services Digital Network, an emerging technology being offered by the telephone carriers of the world. ISDN combines voice and digital network services into a single medium, making it possible to offer customers digital data as well as voice services through a single wire, at speeds of up to 64 Kbps per channel.

ISO
International Organisation for Standardisation.

ITU-T
An organisation with representatives from the PTTs of the world which produces technical standards.

Kermit
A popular file transfer and terminal emulation program.

lan
Local Area Network, a group of computers that are located in one area and connected together.

leased line
A dedicated circuit (private telephone line) between two locations, which is constantly available for transmission of data or voice.

mail gateway
A machine that connects two or more electronic mail systems (especially dissimilar ones on two different networks) and transfers messages between them. Sometimes the mapping and translation is quite complex, requiring a store-and-forward scheme, whereby the message is completely received from one system before it is transmitted, after suitable translation, to the next system.

Martian
Humorous term applied to packets that turn up unexpectedly on the wrong network because of bogus routing entries. Also used as a name for a packet with an altogether bogus (unregistered or ill-formed) Internet address.

MHS
Message Handling System, the system of message-user agents, message-transfer agents, message stores and access units that together provide OSI electronic mail.

modem
Data communications equipment that converts a computer's digital signals to analogue signals that can be transmitted over standard telephone lines. Digital and cellular modems allow data to be transmitted over both fibre optic and microwave media as well.

MTA
Message Transfer Agent, an OSI application process used to store and forward messages in the X.400 message handling system. Equivalent to Internet mail agent.

MTU
Maximum Transmission Unit, the largest possible unit of data that can be sent on a given physical medium. For example, the MTU of ethernet is 1500 bytes. See fragmentation.

multicast
A special form of broadcast in which copies of the packet are delivered only to a subset of all possible destinations. See broadcast.

multi-homed host
A computer connected to more than one physical data link, that may or may not be attached to the same network.

name resolution
The process of mapping a name into the corresponding address. See DNS.

NetBIOS
Network Basic Input-Output System, the standard interface to networks on PC systems.

network address
See Internet address.

NIC
A Network Interface Card is the hardware within a PC that connects it to the network, ie ethernet adapter, token ring adapter.

NIC
The original Network Information Centre was tasked to serve the ARPANET communities. Today many NICs are operated by local, regional and national networks around the world. Such centres provide user assistance, document service training and much more.

NMS
Network Management Station, the system responsible for managing a network or subnetwork. It talks to network management agents residing in the managed nodes via a network-management protocol. See agent.

NOC
Network Operations Centre, any centre tasked with the operational aspects of a network, ie monitoring, controlling, troubleshooting and assisting users.

node
A computer attached to a network (also called a host).

OSI
Open Systems Interconnection, an international standardisation program to facilitate communications among computers from different manufacturers. See ISO.

OSPF
Open Shortest Path First, a proposed standard IGP for the Internet.

packet
Data encapsulated within a network layer header and trailer for transmission over a network.

PDU
Protocol Data Unit, a segment of an SNMP message which contains the actual data.

ping
Packet Internet Group, a TCP/IP program used to test reachability of destinations by sending them an echo request and waiting for a reply. It is commonly used as a verb: 'Ping host X to see if it is up!'

POP
A Point of Presence is a local network node, set up by a service provider, ie. the physical location where your computer connects to the Internet.

port
The abstraction used by Internet transport protocols to distinguish among multiple simultaneous connections to a single destination host. Also the term for a physical input/output (I/O) channel.

PPP
Point-to-Point Protocol, the successor to SLIP, it provides router-to-router and host-to-network connections over both synchronous and asynchronous circuits. See SLIP.

protocol
A formal description of message formats and the rules two or more systems must follow to exchange those messages.

PSN
Packet-switched Node, the modem term used for nodes in the ARPANET or a Packet-Switched Network.

PSTN
Public Switched Telephone Network.

PTT
Poste de Telephony and Telegraph, the term for national or provincial bodies which provide in-country communications services, including voice, data, satellite and video.

repeater
A device that propagates electrical signals from one cable to another without making routing decisions or providing packet filtering. See bridge, router.

RFC
Request For Comments, the document series, begun in 1969, that describes the Internet suite of protocols and other related experiments.

router
A device responsible for making decisions about which of several paths network (or Internet) traffic will follow. The router uses a protocol to gain information about the network, and it uses routing metrics algorithms to choose the best route. See gateway, bridge, repeater.

service provider
A commercial or publicly funded company that provides connectivity to the Internet through dial-up, leased-line or switched-digital services.

shell
A Unix software program that simplifies command line information processing from a terminal.

SLIP
Serial Line IP, an Internet protocol used to run IP over serial lines, which is now being replaced by PPP. See PPP.

SMTP
Simple Mail Transfer Protocol, the Internet electronic mail protocol.

SNMP
Simple Network Management Protocol, the network management protocol of choice for TCP/IP-based internets.

SQL
Structured Query Language, the international standard language which is used for defining and accessing relational databases.

switched digital
A dial-up transmission service over digital lines such as ISDN. See ISDN.

synchronous transmission
A method by which data is transmitted from one communications device to another. A timer at one end of the communication line instructs the device to release the data at a pre-set time interval.

T1 or T-1
A type of digital carrier system transmitting voice or data at 1.5 Mbps. A T1 carrier can handle up to 24 multiplexed 64 Kbps digital voice or data channels.

T3 or T-3
A type of digital carrier system transmitting voice or data at 44.6 Mbps. A T3 carrier can handle up to 28 multiplexed T1s or 672 multiplexed 64 Kbps digital voice or data channels.

TA
A Terminal Adapter is a device that connects a standalone PC or a network to a wan transport media (especially an ISDN link). The function that it performs is essentially quite similar to that of a modem.

TCP
Transmission Control Protocol, the major transport protocol in the Internet suite of protocols. See IP.

Telnet
The virtual terminal protocol in the Internet suite of protocols, it allows users of one host to log into a remote host and interact as normal terminal users of that host.

TFTP
Trivial File Transfer Protocol, a simplified version of FTP, allowing the file transfer from one computer to another over a network.

three-way handshake
The process whereby two protocol entities synchronise during connection establishment.

token ring
A lan protocol made up of individual links forming a circle. A token is passed around the ring and only the device that has the token can send data.

transceiver
Transmitter-receiver, the physical device that connects a host interface to a local area network such as ethernet.

UDP
User Datagram Protocol, a transport protocol in the Internet protocol suite. UDP, like TCP, uses IP for delivery. However, unlike TCP, UDP allows datagrams to be exchanged but without a delivery guarantee.

UUCP
Unix-to-Unix Copy Program, a protocol used for communication between consenting Unix systems.

Veronica
An indexing tool that allows Internet users to keep track of the Gopher menus offering specific services.

WAIS
Wide Area Information Server, originally a joint project of Apple, Thinking Machines, and Dow-Jones, WAIS servers allow users to simultaneously search multiple databases on the Internet.

wan
Wide Area Network, a network that interconnects multiple systems over various geographic locations.

WWW
World Wide Web, a hypertext system used for locating Internet resources.

X.25
An ITU-T standard that defines the interface between data terminal equipment (DTE) and data circuit termination equipment (DCE). The standard also defines the packet format for data transfers in packet-switched networks.

X.400
The ITU-T (and OSI) set of standards for providing electronic mail over an open network. See MHS.

X.500
The ITU-T (and OSI) set of standards for providing directory services across an open network.

A large proportion of this glossary was taken from The EDU-Net Internet Primer: A Quick Reference Guide and Introduction to the Internet. It was produced by Telebit Corporation, and written by Greg Dumas. Copies of the Primer can be obtained by sending email to kthomas@telebit.com

INTERNET

PROVIDERS LIST

If you want to start using the Internet for business, the first thing to do is get connected. Here's a comprehensive list of all the UK providers we know about, together with contact details, prices, and service type information. Pricing scales and access methods are changing constantly, so use this list as a guide, and check the information with the provider directly. We recommend you talk to as many suppliers as possible to find the best service for your needs. Any suppliers wishing to update information, send details to neile@computing.emap.co.uk

Here follows a guide to using our Internet Access Providers' List:
Company name This is the trading name of the company that runs the Internet access service.
Telephone number This is the telephone number each company prefers to use for sales enquiries.
Email address This is the email address each company prefers to use for sales enquiries.
Service name Often the name of the actual service differs from the name of the company providing it. Also, some providers offer more than one service – each name is intended to give some indication of what that service is.
Start-up cost This is a one-off charge paid when a user subscribes to the service. Some providers do not charge a start-up fee.
Ongoing costs This is the monthly (pm) or yearly (pa) charge paid for subscription of the service.
Type of connection This is an important entry, as it shows which providers are offering direct Internet access (IP), those that are offering bulletin board services (BBS), and those offering email and/or Usenet only (UUCP). Most companies supplying UUCP offer an upgrade path to full IP interconnection
Access medium Indicates which communications access methods are supported by this particular service – dial-up modem, ISDN, leased line or X.25.
Aimed at This entry gives some indication of who the company is aiming a particular service at – home users, small business users, workgroup users, lan users or enterprise-wide networks.
Services available This section is largely irrelevant for full IP connection, as the applications themselves are all available irrespective of the provider. For shell or BBS accounts though, each service is either offered or not at the discretion of the service provider.
Details of service This is additional information you may find helpful when deciding which provider to talk to.
Points of Presence The Points of Presence (POP) chart shows which providers have local access and in which cities.

Company name	Telephone no.	Email address	Service name	Start-up cost
Almac	0324 666336	alastair.mcintyre@almac.co.uk	Gold service	none
BBC Networking Club	081 576 7799	info@bbcnc.org.uk	BBC Networking Club	£25.00
Byson Computers	01635 869480	Ian@Byson.demon.co.uk	Standard Dial Up	£12.50
CityScape Internet Services Ltd	0223 566950	sales@cityscape.co.uk	CityScape IP-GOLD	£50.00
Compulink Information eXchange (CIX)	0492 641961	cixadmin@cix.compulink.co.uk	CIX Ltd	£25.00
Compuserve	0800 289378	70006.101@compuserve.com	Compuserve	26.45
Delphi Internet Limited	071 757 7080	ukservice@delphi.com	Delphi	none
Demon Internet	081 349 0063	sales@demon.net	Leased Line Connection	£1,000.00
–	–	–	Network Reserved Dial Up	£750.00
–	–	–	Standard Dial Up	£12.50
Dungeon Network Systems		dale@dungeon.com	Standard SLIP	none
ElectricMail Ltd	0223 420193	info@elmail.co.uk	cc:Mail to Internet Connection	£1,195.00
–	–	–	MS Mail to Internet Connection	£2,195.00
–	–	–	MHS Mail to Internet Connection	£950.00
–	–	–	IP-Start	£200.00
–	–	–	IP-Dial	£300.00
–	–	–	IP-Dial ISDN	£300.00
–	–	–	IP-Line	£1,000.00
EUnet GB	01227 266466	sales@Britain.EU.net	EmalLink	none
–	–	–	EmailLink + News	none
–	–	–	IP-Dial	£300.00
–	–	–	IP-ISDN	£300.00
–	–	–	IP-Line 64K/128K/256K	1000/2000/2000
–	–	–	IP-Line-X25	£1,000.00
ExNet Systems Ltd	081 244 0077	info@exnet.co.uk	Basic	£0.00
–	–	–	Telnet+FTP supplement	£0.00
–	–	–	UUCP serive	£0.00
–	–	–	Full feed service	£0.00
–	–	–	Live IP	£0.00
–	–	–	Full Live IP	£0.00
Foremost Training	041 248 6377	donald@scotnet.co.uk	Scotnet	none
Pavilion Internet plc	01273 607072	info@pavilion.co.uk	Pavilion Internet	£17.75
PC User Group	0181 863 1191	info@win-uk.net	WinNEt	none
–	–	–	CONNECT	£10.00
Pipex	0223 250120	sales@pipex.net	Caller	£250
	–	–	Worldwide	£1,000
RedNet Limited	0494 513 333	info@red.net	onLine	£25.00
The Direct Connection	(081) 317 0100	helpdesk@dircon.co.uk	The Direct Connection	£7.50
Easynet Ltd	071 209 0990	admin@easynet.co.uk	Easynet	£25
Total Connectivity Providers	0703 393392	sales@tcp.co.uk	Freestyle	£7
U-NET	01925 633144	hi@u-net.com	U-NET	£12

	Aberdeen	Belfast	Birmingham	Bracknell	Bradford	Brighton	Bristol	Cambridge	Canterbury	Cardiff	Coventry	Edinburgh	Glasgow	Gloucester	Grangemouth	Hull	Isle of Wight	Leeds	Leicester	Liverpool	London	Luton	Manchester	Newcastle	Nottingham	Preston	Reading	Saffron Walden	Sheffield	Southampton	Sunderland	Swindon	Warrington	Wolverhampton
Almac															•																				
BBC Networking Club			•				•	•				•									•		•											
Byson			•		•		•	•		•	•	•		•		•	•	•	•	•	•	•	•	•	•	•	•	•	•		•		•	•
CityScape	•		•				•	•				•									•		•											
CIX	•	•		•			•	•	•				•								•		•									•		
Compuserve (over 100 sites via GNS)																					•		•				•							
Delphi (over 100 sites via GNS)																					•													
Demon	•		•		•		•	•		•	•	•		•		•	•	•	•	•	•	•	•	•	•	•	•	•	•		•		•	•
Dungeon Network Systems																																		
Easynet																					•													
ElectricMail	•	•		•			•	•	•				•								•		•									•		
EUnet GB	•	•		•			•	•	•				•								•		•									•		
ExNet																					•													
Foremost Training	•												•																					
Pavilion						•																												
PC User Group			•				•	•				•									•		•											
Pipex			•				•	•				•									•		•											
RedNet			•				•	•				•									•		•											
The Direct Connection			•				•	•				•									•		•											
Total Connectivity Providers																														•				
U-NET																																	•	

Ongoing costs	Type of connection	Modem	ISDN	Leased line	X.25	Aimed at (see key)	Email	FTP	Usenet News	Telnet	World wide web	Gopher	Internet relay chat	Details of service
£7.99 pm	ip	✔	✔	×	×	h/s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*Business is focused on 'networking Scotland'*
£12 month	ip	✔	✔	✔	×	h/s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*BBC-related information, transcripts, TV listings etc*
£10 pm	ip	✔	×	×	×	h/s	✔	✔	✔	✔	✔	✔	✔	*The Internet Starter Kit, including Demon connection and Chameleon, costs £179*
£180 pa	ip	✔	×	×	×	h/s	✔	✔	✔	✔	✔	✔	✔	*Other services available, including UUCP connection*
£6.25 month +	bbs	✔	×	?	?	h/s/e	✔	✔	✔	✔	✔	✔	✔	*CIX provides a shareware copy of AMEOL for Windows*
£6 per month	bbs	✔	×	×	×	h/s/w/l/e	✔	×	✔	×	×	×	×	*FTP, WWW and Telnet are in development*
£10 4 h/m or £20 20 h/m	bbs	✔	×	×	×	h/s	✔	✔	✔	✔	×	✔	×	*To try, dial 071-284 2424. Enter @D <return>. Username: GODELPHI, password: EMP*
14.4K £200, 64K £400	ip	×	×	✔	×	l/e	✔	✔	✔	✔	✔	✔	✔	*BT leased line cost depends on distance*
£100 pm	ip	✔	×	×	×	s/w/l	✔	✔	✔	✔	✔	✔	✔	*Lan access to the Internet*
£10 pm	ip	✔	×	×	×	h/s	✔	✔	✔	✔	✔	✔	✔	*Shareware software for Amiga, ST and Archimedes also available*
£10 pm	ip	✔	×	×	×	h/s/w	✔	✔	✔	✔	✔	✔	✔	*Dedicated dial-up is available from £1500 per year*
£380 pa	ip	✔	×	×	×	w/l/e	✔	×	×	×	×	×	×	*The start-up cost includes the first year's subscription*
£380 pa	ip	✔	×	×	×	w/l/e	✔	×	×	×	×	×	×	*The start-up cost includes the first year's subscription*
£380 pa	ip	✔	×	×	×	w/l/e	✔	×	×	×	×	×	×	*The start-up cost includes the first year's subscription*
£250 pa	ip	✔	×	×	×	s/w	✔	✔	✔	✔	✔	✔	✔	*Modem service for 5 users*
450 pa	ip	✔	×	×	×	l/e	✔	✔	✔	✔	✔	✔	✔	*Modem service for unlimited users*
750 pa	ip	×	✔	×	×	l/e	✔	✔	✔	✔	✔	✔	✔	*One-way ISDN service*
£1250 pa	ip	×	×	✔	✔	l/e	✔	✔	✔	✔	✔	✔	✔	*Custom-built email gateways available*
£380 pa+	uucp	✔	×	×	×	s/w/l	✔	×	×	×	×	✔	×	*Gateways to cc:Mail, MS Mail and MHS mail available*
£580 pa+	uucp	✔	×	×	✔	s/w/l	✔	×	✔	×	×	×	×	*Gateways to cc:Mail, MS Mail and MHS mail available*
£1800 pa	ip	✔	×	×	×	s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*On-site hardware options also available*
3000 pa	ip	×	✔	×	×	s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*One-way ISDN service*
5000/8500/15000	ip	×	×	✔	×	s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*Prices inclusive of leased line and on-site router*
£5000 pa	ip	×	×	×	✔	s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*On-site hardware options also available*
7pm 1st month free	bbs	✔	×	×	×	h/s/w	✔	×	✔	×	×	×	×	*Fair usage policy applies, each user only 2 hours a day*
120 pa	bbs	✔	×	×	×	h/s/w	✔	✔	✔	✔	×	×	×	*Includes 10Mb of FTP per day*
£9 month	uucp	✔	×	×	×	s/l/e	✔	×	✔	×	×	×	×	*2 hour usage limit*
25 pm	uucp	✔	×	×	×	s/l/w/e	✔	×	✔	×	×	×	×	*No usage limit and domain name*
20 pm	ip	✔	✔	×	×	h/s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*2 hour usage limit*
£1000 pa	ip	✔	✔	×	×	h/s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*No time limit*
£25 per month	ip	✔	✔	✔	✔	s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*Glasgow-based Internet provider*
£14.75 month	ip	✔	×	×	×	h/s	✔	✔	✔	✔	✔	✔	✔	*Local calls within Brighton via NYNEX Cablecomms*
£6.75 pm	uucp	✔	×	×	×	h/s/w/l	✔	×	✔	×	×	×	×	*WinNET is an offline system*
£7.25 pm+	bbs	✔	×	×	×	h/s/w/l	✔	✔	?	✔	?	?	✔	*PC User Group is the home of the email-based Movie Database Server*
£ 1,200	ip	✔	✔	×	×	h/s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*Router and modems supplied in Caller Plus*
£ 9,400	ip	×	✔	✔	✔	h/s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*Worldwide available 64K,128K, 256K*
£15 month	ip	✔	✔	×	×	h/s/	✔	✔	✔	✔	✔	✔	✔	*Especially skilled in Macintosh integration*
£10 pm	bbs/ip	✔	×	×	×	h/s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*Specialised mail routing available*
£11.90 pm	ip	✔	×	✔	×	h/s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*Owner of the Cyberia cybercafé*
£10 pm	ip	✔	✔	×	×	h/s/w	✔	✔	✔	✔	✔	✔	✔	*Reserved line option available*
£12 pm	ip	✔	×	×	×	h/s	✔	✔	✔	✔	✔	✔	✔	*Service for Windows only, high speed modems throughout*

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Name	Page number	Telephone no.	Email
Cix	39	0181 3908446	cixadmin@cix.compulink.co.uk
Compuserve	29	0800 289378	70006,101@compuserve.com
Datastar	30	0171 9307646	sue.jenkins@dm.rs.ch
Electric Mail	43	01223 420193	info@elmail.co.uk
Essential	4	01275 3431999	sales@essential.co.uk
Ethix	59	01733 863666	sales@calibra.demon.co.uk
Eunet GB	60	01227 266466	sales@britain.eu.net
Harrier Softnet	25	01734 731181	sales@harrier.com
Integralis	4	01734 306060	h_alpe@integralis.co.uk
Leaf Distribution	59	01256 331433	sales@leaf.co.uk
Netmanage	8	01483 502003	jsl@netmanage.com
Solwise	37	0482 473899	–
Telebit	2	01635 528730	kthomas@telebit.com
Total Connectivity	37	01703 393392	sales@tcp.co.uk
What Personal Computer	49	0181 8687618	subs@computing.emap.co.uk
Work group Computing	44	0171 3882430	–

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We want to find out what you think about **INTERNET**. Use email to tell us by sending your comments to comments@computing.emap.co.uk

Be sure to make the subject line of your message 'Internet 3 Comments'. You may, of course, write to or fax us at the address below.

Reply to our email reader survey and win a book! Better still, answer the following questions and send your reply to **polls@ computing.emap.co.uk** (Subject: Internet 3). We'll undertake to give away copies of Ivan Pope's book Internet UK to the senders of the first ten responses.

To help us plan our coverage in future issues of **INTERNET**, we would like you to answer the following three questions:

1. What do you think will be the most important Internet issues over the next 12 months? (Prioritise the subjects and add any you feel are missing.)

- Addressing (IPng etc)
- Censorship
- Commercialism
- Lan management
- Navigation • Pornography
- Pricing of services
- Security • Seminars / Events
- Standards ratification
- Training • Usability

2. What Internet products and services do you expect to buy over the next 12 months, in each of the following categories?

- Hardware (eg modems, routers, ISDN cards, Web servers etc)
- Software (eg TCP/IP, email, Web browsers, etc)
- Services (eg CityScape, CompuServe, Delphi, ISDN etc)

3. On a scale of one to ten, how would you rate your Internet knowledge and experience? (1=beginner, 10=expert)

Snail Mail

If you don't have access to any kind of email, fax your answers to 0171-833 9578, or you can post them to:

Internet Survey 3,
EMAP Computing,
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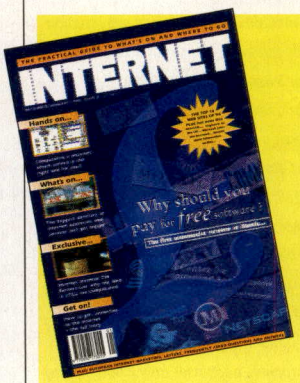

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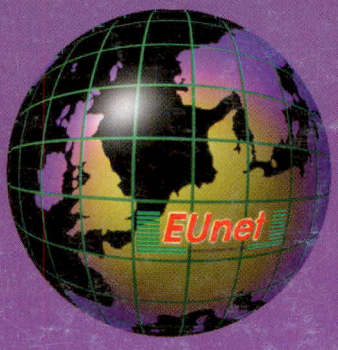

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